Noesis

The Journal of the Mega Society

Issue #215, June 2025

About the Mega Society

The Mega Society was founded by Dr. Ronald K. Hoeflin in 1982. The 606 Society (6 in 10^6), founded by Christopher Harding, was incorporated into the new society and those with IQ scores on the Langdon Adult Intelligence Test (LAIT) of 173 or higher were also invited to join. (The LAIT qualifying score was subsequently raised to 175; official scoring of the LAIT terminated at the end of 1993, after the test was compromised.) A number of different tests were accepted by 606 and during the first few years of the Mega Society's existence. Later, the LAIT and Dr. Hoeflin's Mega Test became the sole official entrance tests, by majority vote of the membership. Then, Dr. Hoeflin's Titan Test was added. (The Mega Test and Titan Test were also compromised, so Mega Test scores after 1994 and Titan Test scores after August 31st, 2020 are currently not accepted; the Mega and Titan cutoff is 43 - but either the LAIT cutoff or the cutoff on Dr. Ronald K. Hoeflin's tests will need to be changed, as they are not equivalent.) The Mega Society now accepts qualifying scores on The Hoeflin Power Test and on The Ultra Test. Both tests are still being scored. The Mega Society publishes this irregularly-timed journal.

Answer sheets for The Hoeflin Power Test and The Ultra Test can be emailed to ultrapowertest@gmail.com; the scoring fee for each test is $10 USD, payable via Stripe.

https://megasociety.org/#admission

The society also has a (low-traffic) members-only email list. Mega members, please contact one of the Mega Society officers to be added to the list.

For more background on Mega, please refer to Darryl Miyaguchi's "A Short (and Bloody) History of the High-IQ Societies" —

http://miyaguchi.4sigma.org/BloodyHistory/history.html

—and the official (designed) Mega Society page,

http://www.megasociety.org/

Noesis is the journal of the Mega Society, an organization whose members are selected by means of high-range intelligence tests.

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Opinions expressed in these pages are those of individuals, not of *Noesis* or the Mega Society.

Noesis #215, June 2025

Editorial

Richard May, Ken Shea

The current issue of *Noesis* largely revolves around the following topics: scientific advancement, effective science communication, celebrity and popular culture, artificial general intelligence, humanism, temporality, the holographic principle, and the paradoxical meaning of nothing.

Chris Cole sets the table with “PH Phenomena” by furnishing an abbreviated tour of Western science’s perceived triumphs and blunders, lending a balanced historical perspective.

The survey begins with a quotation from W.V.O. Quine cheerleading Western science’s overall track record. Readers should note, however: Quine’s ‘web of belief’ and ‘ontological relativity’ imply a coherence theory of truth, or epistemological holism, cf. Duhem-Quine thesis.

In any event, Scott Douglas Jacobsen, then, interviews a trio of physicists - Lawrence Krauss, Behnam Pourhassan, and Jim Al-Khalili, respectively.

Lawrence Krauss is a world-famous theoretical physicist and cosmologist who has taught at Yale University and Arizona State University (ASU), where Krauss founded and served as director for ASU’s Origins Project.

Krauss considers popular issues like science communication and humanism alongside string theory, the so-called Big Bang, and other potential nuances of cosmogony.

The physicists Behnam Pourhassan and Jim Al-Khalili, subsequently, will deal more directly with quantum theory and its implications. Behnam Pourhassan serves as a faculty member at Damghan University, and Jim Al-Khalili is a theoretical physicist and Distinguished Professor Emeritus at the University of Surrey.

In the Scott Douglas Jacobsen interviews found below, Behnam Pourhassan specifically focuses on quantum cosmology and quantum information theory, whereas Jim Al-Khalili interrogates the quivering foothold of time’s arrow, other counterintuitive findings, and the possible faces the ontological interpretation of quantum mechanics might assume.

The final Scott Douglas Jacobsen interview features Ruslan Salakhutdinov, the UPMC Professor of Computer Science at Carnegie Mellon University’s Machine Learning Department.

After that, Mega Society member and television writer/producer Rick Rosner bookends the issue by analyzing the trappings, appeal, and political activism of celebrities in today’s society.

The next issue of *Noesis* will be published in January of 2026. Original submissions welcomed.

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PH Phenomena

Chris Cole

“Scientists are so good nowadays at discovering truth that it is trivial to condone their methods and absurd to criticize them.”

-W.V.O. Quine and J.S. Ullian (*The Web of Belief*, p. 32)

Science museums give the impression that science inexorably progresses toward truth.

However, this is not accurate.

There are many examples of periods during which an inaccurate theory dominated a science.

Here are examples that start with the letters PH:

> Phlogiston (1660 - 1780): the hypothetical principle of fire regarded formerly as a material substance
>
> Phrenology (1800 - 1850): the study of the conformation of the skull based on the belief that it is indicative of mental faculties and character
>
> Phlebotomy (5th century BCE - 1830): the letting of blood for transfusion, diagnosis, or experiment, and especially formerly in the treatment of disease
>
> p-hacking (1920 - 2010): the practice of manipulating data to produce a desired p-value, or to find patterns that appear statistically significant

This is only a sample from the list of such periods; there are many others, but a word to the wise is sufficient.

Science museums should tell an accurate history.

“The first principle is that you must not fool yourself -- and you are the easiest person to fool.”

- R. P. Feynman (https://calteches.library.caltech.edu/51/2/CargoCult.htm)

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Conversation with Dr. Lawrence Krauss on Non-“Ism” Humanism and Nothing

Lawrence Krauss & Scott Douglas Jacobsen

Abstract

This interview explores the intersection of science and humanism through the insights of Dr. Lawrence Krauss, an esteemed theoretical physicist and public intellectual. Dr. Krauss discusses the fundamental principles of humanism, including the acceptance of reality, the use of reason and intelligence to improve society, and the importance of skepticism and scientific integrity. The conversation delves into challenges in science communication, the misconceptions surrounding the concept of “nothing,” and the dynamics of engaging with differing ideologies. Additionally, Dr. Krauss shares his experiences in public debates, his views on effective science communicators, and the role of humanism in promoting equality and resisting oppressive structures. This interview provides a comprehensive understanding of Dr. Krauss’s vision for a scientifically informed and humanistic society.

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Keywords: Debates, Equality, Humanism, Lawrence Krauss, Nothing, Philosophy of Science, Public Understanding of Science, Science Communication, Scientific Integrity, Skepticism, Oppression

Introduction

Dr. Lawrence Krauss, a prominent theoretical physicist and bestselling author, is renowned for his ability to bridge complex scientific concepts with public discourse. In this interview conducted by Scott Douglas Jacobsen, Dr. Krauss delves into the essence of humanism, emphasizing its reliance on reason, intelligence, and the acceptance of reality to foster societal improvement. The discussion addresses the challenges inherent in communicating intricate scientific ideas to a broader audience, highlighting the importance of integrity and skepticism in both scientific endeavors and humanistic practices. Dr. Krauss also reflects on his experiences in public debates, offering critiques on effective science communication and the interplay between science and philosophy. Furthermore, he elucidates the nuanced understanding of "nothing" within the context of physics and cosmology, countering common misconceptions. This interview sheds light on Dr. Krauss's commitment to promoting a scientifically literate and equitable society through his work with The Origins Project and his role as a public intellectual.

<u>Section 1: Defining Humanism</u>

Scott Douglas Jacobsen: Today, we are here with Lawrence Krauss, probably one of the most prominent humanists. Thank you for taking the time today and indulging in a pipsqueak like me, as an older term for endearment. Today's focus will be humanism and nothing. I'm an independent journalist. So, I can choose the topic and don't necessarily have to engage in "gotcha" journalism or focus on one thing and another. I want to focus on a couple topics of interest and expertise for someone for a limited allotted time. So, when we're focusing on humanism and nothing in this interview, it makes you an expert in something and nothing. You have a broad palette!

Dr. Lawrence Krauss: The two are not that different.

<u>Section 2: Characteristics of Humanist Communities</u>

Jacobsen: When you see humanism, at least the theory as opposed to the practice, what is its characteristic for you as you travel the world and see different humanist communities?

Krauss: Well, I guess, first of all, I don't tend to label people in terms of "-isms." I don't think in terms of "-isms." I don't say, "This is a humanist community," or "These people are humanists." People are individuals, and I don't label myself except, perhaps, as a scientist.

But humanism is a willingness to accept the world for what it is and realize that we can try to make the world a better place with intelligence and reason. Those are the two basic features: accept reality and take the evidence of reality as your guide, and use your intelligence, reason, and observations to try to make the world a better place for both people and, in my case, nature as well.

Section 3: Filtering Facts Through Ideologies

Jacobsen: Do you think a common mistake for most people is filtering the world's facts through a particular ideology, religious or otherwise?

Krauss: We all do it. We're all hardwired to do it, so we have to fight against it. We learned a neat tool about 500 years ago—certainly at least 400—that helps overcome this natural human tendency. It's called science. We learned that scientists are flawed, but the scientific process is self-correcting.

This process involves taking data, making predictions, checking them against the data, and making your ideas open to rigorous scrutiny and attack from colleagues and others. This way, you filter out what's wrong. You check again, do more experiments, and repeat the process. It works and helps overcome the natural human tendency to want to believe things—like Fox Mulder in *The X-Files*.

Section 4: Challenges in Scientific Training

Jacobsen: What part of scientific training do you think was the most difficult when training junior scientists?

Krauss: The hardest part is learning to work equally hard to prove your ideas wrong as you do to prove them right. The easiest person to fool is yourself. It's easy to be skeptical of other people's data but harder to be skeptical of your ideas. The most difficult challenge is being willing to look for what's wrong with your arguments.

Section 5: Effective Science Communicators

Jacobsen: Who do you think is the best science communicator?

Krauss: "The best science communicator," one of my favourite science communicators is Jacob Bronowski. He made a TV series called *The Ascent of Man* and wrote several great books. *The Ascent of Man* is one of the best examples of science communication, but it's not just about science. It's one of the best science and humanist art TV series ever. He was brilliant, and his books are wonderful. So he's high on my list, though he could be more well-known today. He was more recognized back when his show aired—13 parts, if I remember correctly.

But anyway, he was a great science communicator—a scientist of sorts. Richard Feynman was another excellent science communicator who got people excited and thinking. However, Carl Sagan has done an outstanding job of inspiring people. Albert Einstein also wrote clear books about relativity. And, of course, Charles Darwin is at the top of the list.

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Section 6: Reflections on Darwin and Communication

Jacobsen: I'm sure the late Daniel Dennett would have agreed on that point.

Krauss: Well, maybe he would have, I don't know. Richard Dawkins is always surprised when I say that, as a physicist, Darwin is my top choice. Not because of *On the Origin of Species* but because I was captivated by his earlier work, *The Voyage of the Beagle*. It's a gripping book—it reads like a Hollywood movie. He's almost always getting killed, making you think about everything. It's remarkable. It's a great read. I thought it would be tedious and difficult, but it's not.

Section 7: Communicating Big Ideas to the Public

Krauss: Big ideas—general relativity, quantum mechanics, and so on—have at least been communicated to the public. These are foundational theories that the general public may not fully understand since we don't all have the math or training, but the concepts have been explained clearly. For example, if you drop a rock and a feather, most people think the rock falls faster because it's heavier. That misconception is independent of college education, as I've discovered.

At some level, though, certain ideas filter down. The fact that the universe had a beginning, even if people don't believe it was only 6,000 years ago, filters through. The idea of the Big Bang is a profound result. General relativity involves the curvature of space and the existence of black holes—those ideas filter in.

That's why I write books: to give people perspective. I don't expect them to understand the details. The biggest surprise for me when I first wrote a book, which was originally a disappointment, was that many readers didn't grasp the full depth. But I got over it.

Section 8: Reader Feedback and Misunderstandings

Krauss: When people write to me, saying, "I loved your book" and "I loved this part, blah blah blah," it's often completely different from what I had written. I need clarification on what I wrote. At first, I thought, "How disappointing." But I had inspired them to think about it, and maybe that's what matters.

Section 9: Communicating Humanist Ideas and Misunderstandings

Jacobsen: Do you find a similar experience when communicating humanist ideas or humanism in general—particularly when advancing science education for the public? Do you encounter similar misunderstandings of what you're writing about humanism or values that would be considered humanist?

Krauss: Absolutely. First, what happens online is that people often only read the title or what someone else says about the title. So, of course, there are misunderstandings because most people need to be tuned to read what I say. They read what someone thinks I said or just the title and that's enough for them.

Online, the level of discourse is sometimes below kindergarten level—they read almost nothing. They glance at the title, feel they've read enough, and then comment, usually writing something antagonistic. Sometimes, they love it without even reading it.

For example, when my Substack article or video is released, I'll get "I love it" responses within 15 seconds of it going live, which tells me they probably didn't read or watch it. It's nice that they love it, but engaging with the content would be good.

Section 10: Misconceptions About "Nothing"

Jacobsen: That leads to the second topic—with almost nothing as the transition. You've explained this hundreds of times, I'm sure. When people think of "nothing," they imagine an endless black void. What's wrong with that image, and what's the appropriate way to understand it?

Krauss: As I said in my book, *A Universe from Nothing*, there are many versions of "nothing." For example, the Bible's idea of "nothing" is often depicted as an endless void, which is one version of "nothing." But there are many more. The easiest "nothing" to talk about is space—because space isn't empty. It's filled with virtual particles popping in and out of existence, and some eventually become real particles. So, that "nothing" is unstable; if you wait long enough, something will happen.

Then, you have another level of "nothing," no space or time. That's the version I was mostly talking about in my book. You take all the space and time we live in and imagine none existed. Then, suddenly, it did. That's possible, even though some people struggle with the concept, asking, "What was out there before?" or "Was there anything else?" These are generally meaningless questions because everything in our universe - space and time - did not exist before, and then it did. Whether there was some preexisting structure or something else is irrelevant.

Our universe didn't exist, and then it did. It's like a magic trick. I've been practicing magic tricks while talking to you.

[Editors' Note: 'As Terence McKenna observed, modern science is based on the principle: "Give us one free miracle and we'll explain the rest." The one free miracle is the appearance of all the mass and energy in the universe and all the laws that govern it in a single instant from nothing.'

-Rupert Sheldrake]

Section 11: Theological Pushback on “Nothing”

Jacobsen: So, Penn Jillette would be proud.

Krauss: Well, Penn is proud! He’s happy that I value magic.

Jacobsen: I should send him an email. I interviewed the late James Randi before he passed away, and I’m glad I had the chance to do that.

Krauss: One of my favourite pictures is of Penn, me, and Randi. I love it because I’m happy to be with two men I admire, and we all fit in the same frame. It was remarkable, especially because Randi was much shorter than me!

Section 12: Defining “Something from Nothing”

Jacobsen: So, what would be another definition of something from nothing?

Krauss: A lot of what you see in the world is illusion, too. The difference is, in science, we try to distinguish between illusion and reality.

Section 13: Theological Pushback and Meaning of “Why”

Jacobsen: When you discuss the concept of “nothing,” more precisely defined as it relates to how the real world operates, what kind of pushback do you typically get from theologians or people looking for more than just that explanation?

Krauss: What do I get from theologians? Nothing much. When you say they’re looking for more of an answer, do you mean they want some meaning behind why it’s happening?

Jacobsen: Correct. You explain, but they often ask, “Why.” And when you respond that “why” has no inherent meaning, that can be frustrating for them, right?

Krauss: They’re looking for an answer that implies some underlying purpose or immateriality.

Section 14: The Meaning of “Why” and the Laws of Physics

Jacobsen: But as you’ve pointed out, when they ask “why,” they often mean “how.” They expect answers about purpose when the question is about reality’s mechanisms. And then they ask, “Where did the laws of physics come from?” or similar questions, right?

Krauss: Yes, that’s a common follow-up. The simplest and most honest answer is, “I don’t know.” And that’s the point of my last book. The three most important words in science—and in life, really—are “I don’t know.”

That means there's more to learn. But there are many possible answers, and they would prefer something else would need more. The simplest answer is that the laws of physics came into existence simultaneously with the universe. That's an answer only some people find satisfying, but it's possible. Another possibility is that some laws have preexisted the universe.

When you say "laws," it implies that there's maybe only one underlying set of rules by which physical existence can manifest. At least one thing is certain: many of the laws in our universe are emergent, effective laws—they are accidents of our universe. The properties of elementary particles and the four forces of nature are likely accidental consequences of what happened after the Big Bang. But fundamental concepts, like general relativity and quantum mechanics, may be intrinsic properties of nature. Why does nature have those properties? Who knows?

And maybe—again—it's unclear whether that question even has meaning. So, it's almost a meaningless question to ask if the laws were "eternal." Because if time itself came into existence with the universe, then what does "eternal" even mean?

<u>Section 15: The Concept of "Eternal" and Time</u>

Krauss: "Eternal" only has meaning if time exists. If time came into existence with the universe, then "eternal" becomes an ill-defined concept. There could be a global time variable in some space outside our universe or in some other context from which our universe emerged. In that case, there could be an "eternal" time variable. But it needs to be better defined, especially when talking about the origin of our universe, where we know the laws of physics break down at the point where space and time began.

<u>Section 16: Occam's Razor and Extra Dimensions</u>

Jacobsen: That could also be reduced to Occam's Razor—parsimony. If people are positing some invariant time outside of our regular universe, does that create a rickety structure of assumptions?

Krauss: Again, it depends on what you mean by "outside of our universe." Our universe could be infinite. But if our universe emerged spontaneously as a closed universe, there would be no "outside" as it expanded. It just came into existence. There may be other spaces, but there's no reason to assume our universe was embedded in those spaces.

Now, there are extra dimensions that we're embedded in some larger multidimensional space. Despite being a well-motivated idea, that's another possibility, though it currently needs more evidence.

<u>Section 17: String Theory's Definition of "Nothing"</u>

Jacobsen: Do string theorists define "nothing" differently than what you've described?

Krauss: Do string theorists define “nothing” differently? No. String theorists are physicists, so we all define “nothing” similarly. It still comes down to quantum mechanics and general relativity because that’s what string theory is based on. String theory expands upon these ideas, but the fundamental definition of “nothing” remains the same.

And what I can say that maybe generalizes string theory, especially beyond four dimensions of space and time, is that string theory suggests there’s a smallest possible distance you can get to - it doesn’t allow you to reach zero size. In other words, you can achieve a fundamental smallest scale, a minimum length, known as the Planck length.

String theory also implies there’s the smallest time increment because space and time are intertwined. The best way to put it is that there’s a minimum space-time interval. Things popping in and out of existence still happen. Still, string theory allows for a much larger framework for these phenomena. Not only does it allow, but it requires more than four dimensions - beyond the three spatial dimensions and one-time dimensions we’re familiar with - for the theory to be mathematically consistent.

If string theory describes our universe, there are likely more than four space-time dimensions. The theory is well-defined. However, we’re still learning about the mathematical structures within it. Strings used to be considered the fundamental building blocks. Still, we know that strings are only some fundamental constructs in string theory. We’ve moved to more complex entities like membranes (branes) and manifolds.

It’s a complicated mathematical framework - I was about to say “mess,” but I don’t know if that’s fair. It’s a work in progress.

Section 18: Sean Carroll and Poetic Naturalism

Jacobsen: Sean Carroll is another prominent humanist and popularizer of science.

Krauss: I think of him more as a philosopher, however.

[Editors’ Note: https://aeon.co/essays/what-does-the-philosophy-of-physics-add-to-human-knowledge]

Jacobsen: He’s an effective presenter.

Krauss: He is. Sometimes, yes. He could be overly poetic for my taste, but he’s an effective communicator.

Jacobsen: He uses this concept of “poetic naturalism” to encapsulate his views.

Krauss: Yes, that’s where I don’t quite align with him. He’s effective but sometimes makes things sound grand, maybe to appear smarter. He’s written entire books on many-worlds interpretation, which feels like a waste of pages. The key issue isn’t what interpretation of quantum mechanics we use - whether it's many-worlds or something else. The important thing is not how we interpret quantum mechanics but how we interpret classical mechanics.

The world is inherently quantum mechanical. So, trying to frame it in terms of some "effective" classical theory and then coming up with something that sounds bizarre doesn't add much. Of course, quantum mechanics is weird, but the point is that the world is quantum mechanical, and we should embrace that.

So, any classical interpretation of quantum mechanics seems weird. But again, Sean Carroll is more of a philosopher because philosophers love creating and quoting these definitions. I don't think in terms of definitions. What is "poetic naturalism"? I'm sorry, I'm going on a rant here. But anytime you start creating these fancy terms, it feels like something philosophers love to do, and often, it just obfuscates, as far as I can see. What's the formal definition of poetic naturalism?

Section 19: Poetic Naturalism Defined

Jacobsen: I don't know the formal definition, but I understand it's about using ordinary language to describe the world while acknowledging that we operate under physical laws and principles.

Krauss: Maybe. But if that's what it is, why not just say that? It is an overly grandiose way of describing something very straightforward. Anyway, I'm digressing.

Section 20: Experiences in Public Debates

Jacobsen: You've participated in a few debates—what was your favourite moment from those debates?

Krauss: I generally don't enjoy debates. They're more rhetorical exercises than explanation, logic, and critical thinking discussions. I don't think about favourites, but I recall one of the most effective moments.

Unfortunately, I debated William Lane Craig several times. I assumed he was well-meaning the first time, but I soon realized that was my mistake. Afterward, I tried to avoid him, though I debated him again despite attempting to convince the organizers in Australia not to invite him. We did three debates for a Christian group - very nice people - with large audiences, mostly Christians. It was fun to expose the superficiality of his thinking on certain topics.

There were two notable things: first, his arguments were low-hanging fruit, and second, he distorts and lies, which is why I found it so frustrating - one moment that resonated with the audience occurred during the Q&A section of one of these debates. Unfortunately, most of these debates were moderated by philosophers who often seemed more interested in hearing themselves talk than in asking us meaningful questions. But one asked, "What would it take to change your mind?" - specifically about belief in God.

Section 21: Response to William Lane Craig's Question

Jacobsen: What did you say?

Krauss: I said that if I looked up at the night sky and the stars realigned to spell out "I'm here" in Aramaic, Hebrew, English, or even Russian, I'd be impressed. That would be a remarkable event. It would make me reconsider things. William, on the other hand, gave a remarkably facile answer. This surprised me, considering he has debated this topic his whole life.

William Lane Craig said that if his daughter died, he'd question the existence of God. Wow, that's a pretty flimsy belief system.

Then, there was another moment, similar in tone. I had heard him debate before, and I think this came from one of those debates. It was about the Amalekites. You know, the biblical story where the Israelites are commanded to kill all the Amalekite men, women, and children - everyone.

Section 22: Debating Biblical Narratives

Jacobsen: Yes, I'm familiar with it.

Krauss: So, I asked him, "What about the children? Why did they have to be killed? They hadn't done anything wrong."

His response was, again, remarkable. First, he said, "The children haven't done anything wrong, so they'll go to heaven." Great - because that's what parents want to hear, right? Then he said something even more shocking: "I don't feel sorry for the children. I feel sorry for the Hebrew soldiers who had to kill them under God's orders because they would have been traumatized."

That alienated most of the audience. It was a moment that stuck with me.

Section 23: Connection to Humanism and Human Rights

Jacobsen: That's astounding.

Krauss: Yes, it was.

Jacobsen: This ties into humanism. A deep sense of fairness, equality, and human rights is important to many humanists, though not all. Noam Chomsky, for example, has a long history of political activism and has been described as a humanist and self-describes as an atheist.

I remember during one debate, you refused to take part because they were planning gender segregation. Could you tell me more about that moment and your decision?

Section 24: Refusing to Debate on Principle

Krauss: Yes, I did refuse. Noam Chomsky—by the way, I don't think he necessarily identifies as an atheist, even though he's often described that way. He doesn't care about that label. He's often told me that he doesn't care what people believe, only what they do. It's about actions, not beliefs, for him. And that's true for me as well.

Section 25: Maintaining Principles Amidst Pressure

Jacobsen: That makes sense. So, how do you maintain that courage in the face of pressure, especially when you're in a situation where standing up for equality could result in pushback from the crowd? Chomsky has a long history of activism and has faced backlash. I imagine you've encountered similar resistance.

Krauss: It isn't easy sometimes. In that particular case, when I refused to debate in a segregated environment, I was standing by a principle I believe in deeply: secularism in a secular forum. It's not about making grand gestures; it's about not compromising on fundamental values. I knew there would be consequences, but you can't let that deter you.

The key is to remind yourself of the bigger picture. When you're in front of a crowd, it's easy to get caught up in their reactions, but you must stay focused on what's right rather than on what's popular. Over time, you develop the resilience to withstand that kind of pushback. It helps to remember that history often judges those who stand for equality and justice more favourably in the long run than those who try to appease the status quo.

Section 26: Facing Hostility and Real Courage

Jacobsen: At that moment, you were facing pushback from the crowd. Was that a scary situation for you?

Krauss: There have been scarier moments, but it wasn't about courage in the traditional sense. You either act in a way you believe is right or you don't. When you put yourself in that position, you must back up your words with action. Deciding not to debate and walking out if they didn't desegregate the audience wasn't the most courageous thing I've ever done. For me, it was a no-brainer.

I did it partly because I felt it was disingenuous - they had told me the event wouldn't be segregated, and then it was. But more importantly, two young men sitting in the women's section were about to be dragged out, and they asked for my help. They were scared, so I stepped in. That wasn't the scary part, however.

The really scary part was afterward, looking into the eyes of the women in burkas. There was so much hate in their eyes because of the desegregation. You don't know what people might be carrying under their burkas, and the hostility was palpable. During the question period, one of these women asked, “How dare you? What right do you have to do that?”

I tried to be gentle in my response, explaining that if we were in a mosque, she’d have every right to feel that way. But we were in a university lecture hall, in a secular society. If she went to a football game, she couldn’t say, “Stop the game until the women sit on one side and the men on the other.” The event was videotaped and recorded; she didn’t have to come if she didn’t want to sit next to a man. But in a secular society, she couldn’t expect her religious needs to dictate public events.

People sometimes call me or Richard Dawkins brave, but let me tell you what real bravery is. I recently came back from an event in Oslo with ex-Muslims from around the world. These are people who face death threats for renouncing their faith. They have to flee their countries, and their parents say they wish they had killed them when they were babies. These people live with that pain, and they still call their parents, who tell them they wish they had been killed. That’s real bravery.

That’s a different level of courage than simply getting up and walking out of a debate.

Section 27: Closing the Debate Discussion

Krauss: That’s a different level of courage than simply getting up and walking out of a debate.

Jacobsen: Lawrence, thank you for the opportunity and your time today, sharing insights on something and nothing.

Krauss: I wonder if I gave you many insights, but I owe you more time. Hopefully, there’s something useful in all of that.

Section 28: Final Remarks

Jacobsen: Excellent. Dr. Krauss, thank you very much for your time today. I appreciate it.

Krauss: Thank you for giving me this opportunity. If you need anything, please don’t hesitate to contact me or my team. It’s been a pleasure to join you today. Thank you for the invitation.

Jacobsen: Take care. Nice to meet you.

Krauss: Bye-bye.

Jacobsen: Bye-bye.

Noesis #215, June 2025

Discussion

This interview with Dr. Lawrence Krauss provides a profound exploration of the principles of humanism as they intersect with scientific inquiry and public discourse. Dr. Krauss emphasizes that humanism is fundamentally about accepting the world as it is and striving to improve it through reason and intelligence. He highlights the inherent challenges in science communication, particularly the tendency for audiences to engage superficially with complex ideas, often leading to misunderstandings or misinterpretations. Dr. Krauss's critique of online discourse underscores the importance of depth and engagement in fostering a scientifically literate society.

A significant portion of the discussion centers around the concept of "nothing" in physics and cosmology. Dr. Krauss elucidates the different interpretations of "nothing," challenging common misconceptions and addressing theological pushback. His explanations demystify complex scientific concepts, making them more accessible to the public while maintaining their intricate nuances. This approach reinforces the role of scientists as educators and communicators who bridge the gap between specialized knowledge and public understanding.

Dr. Krauss also shares his experiences in public debates, particularly his interactions with William Lane Craig. These anecdotes illustrate the challenges of engaging with deeply entrenched ideological positions and the limitations of debates as platforms for genuine understanding. His reflections reveal a commitment to integrity and principled discourse over rhetorical victories, aligning with the core tenets of humanism that prioritize truth and ethical responsibility.

Overall, the interview underscores Dr. Krauss's dedication to promoting a society that values scientific integrity, critical thinking, and humanistic principles. His insights advocate for a more informed and equitable public discourse, where complex ideas are communicated effectively, and societal challenges are addressed through reasoned and ethical approaches.

Methods

The interviewer, Scott Douglas Jacobsen, conducted an in-depth, semi-structured interview with Dr. Lawrence Krauss. The conversation was arranged with Dr. Krauss's consent and took place in a setting conducive to a comprehensive dialogue, either online or in person, based on logistical considerations. The interview was recorded to ensure accuracy and fidelity to both participants' viewpoints. Following the interview, the recording was transcribed verbatim, capturing Dr. Krauss's responses in their entirety. The transcript was then meticulously edited for clarity and brevity, ensuring that the essence and substance of Dr. Krauss's insights were preserved without introducing any bias or alteration. This methodological approach facilitated a rich qualitative analysis of Dr. Krauss's perspectives on humanism, science communication, and the interplay between science and society, allowing for an in-depth understanding of his philosophical and scientific viewpoints.

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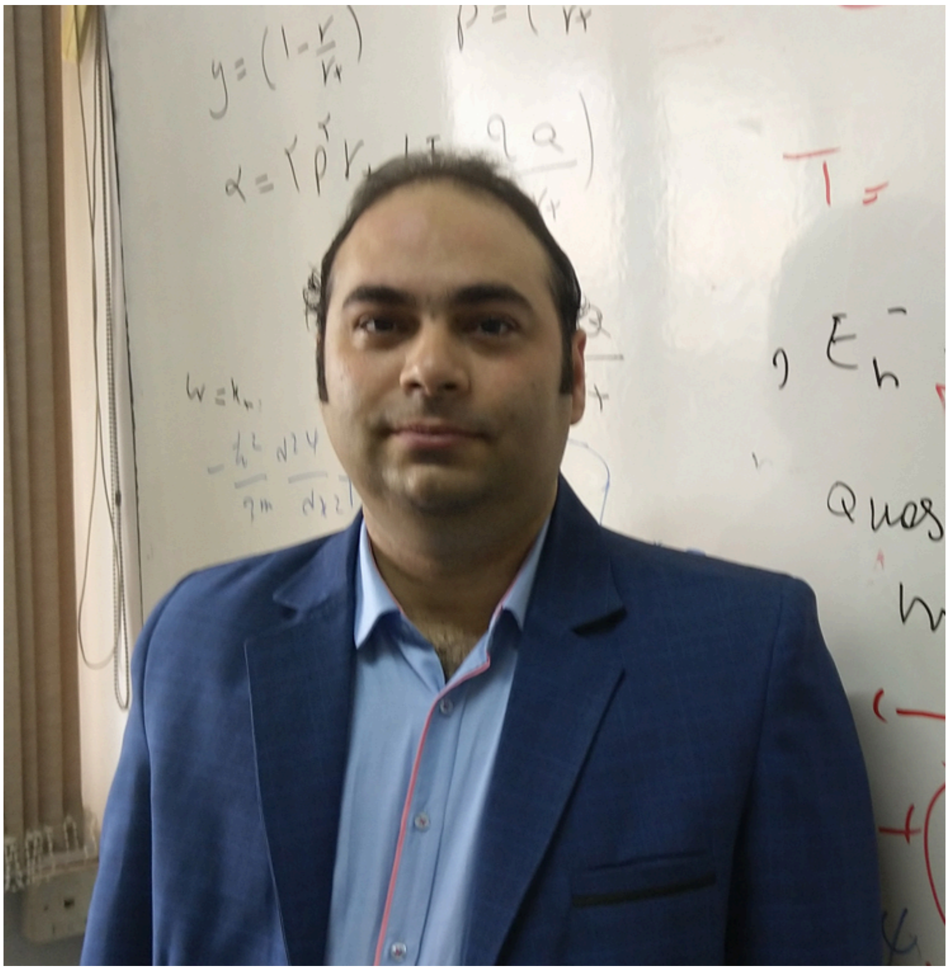
From Surface Entropy to Quantum Remnants: A Conversation with Behnam Pourhassan

Behnam Pourhassan & Scott Douglas Jacobsen



In this wide-ranging conversation, Professor Behnam Pourhassan unpacks the intricate landscape of black hole thermodynamics and its profound implications for quantum gravity and cosmology. He explains how the entropy of a black hole is proportional to its surface area— a revelation that supports the holographic principle, which posits that information is encoded on boundaries rather than within volumes. The phenomenon of Hawking radiation, he notes, implies that black holes are not eternal but slowly evaporate over time.

Pourhassan delves into the thermodynamic phase transitions of black holes, explores quantum corrections to entropy, and examines the possibility of stable black hole remnants. He also discusses how dark energy propels the universe's accelerated expansion and outlines how modified gravity theories seek to replace the notion of unseen substances with fundamental changes to gravity itself.

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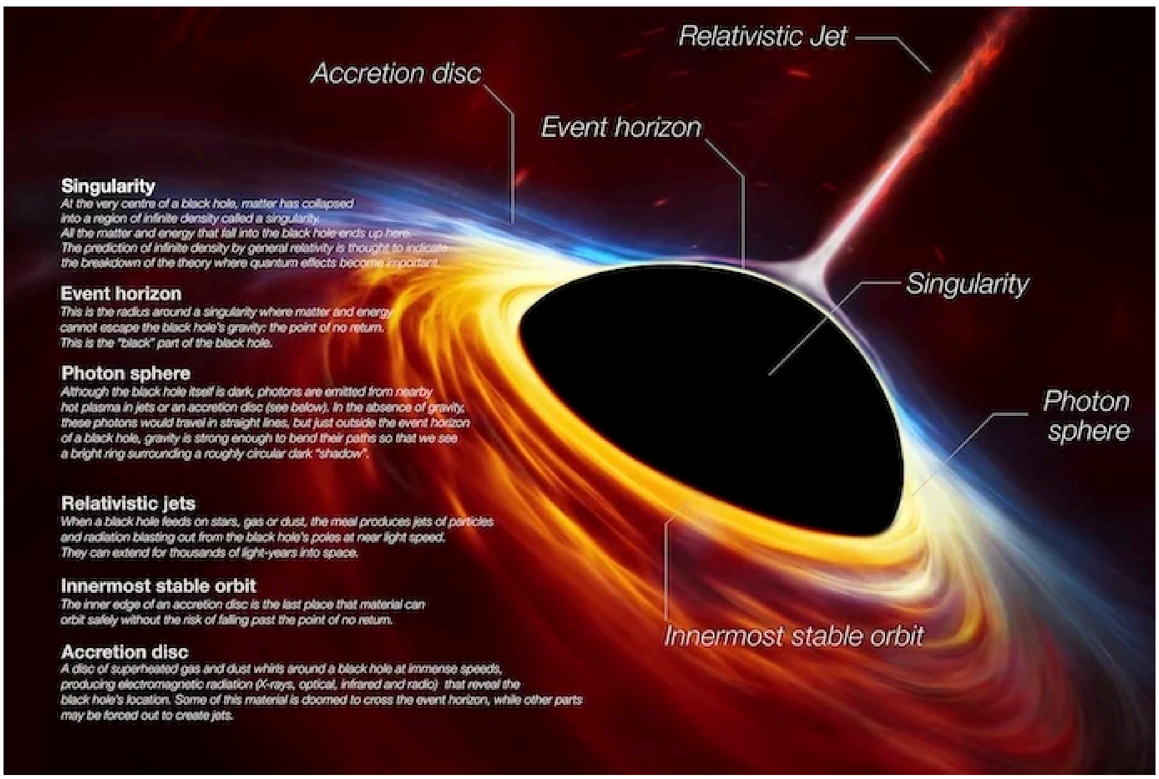
The conversation turns to the unique properties of anti-de Sitter (AdS) black holes and the role of the AdS/CFT correspondence, a theoretical bridge linking gravity to quantum field theory. Pourhassan also touches on a range of related topics—from cosmic strings and nonlinear electrodynamics to the statistical mechanics of gravitational systems and the implications of massive gravity for black hole physics. Crucially, he emphasizes the role of quantum information theory in addressing the black hole information paradox, a subject actively explored at the Canadian Quantum Research Center.

This interview will be featured in a volume of dialogues with leading thinkers in quantum cosmology, quantum gravity, and quantum information theory.



This illustration shows a supermassive black hole—an incredibly dense object with a mass ranging from millions to billions of times that of our sun. These cosmic giants are typically found at the centers of galaxies, hidden deep within their cores.

Scott Douglas Jacobsen: How is black hole entropy related to surface area? Why is this significant?

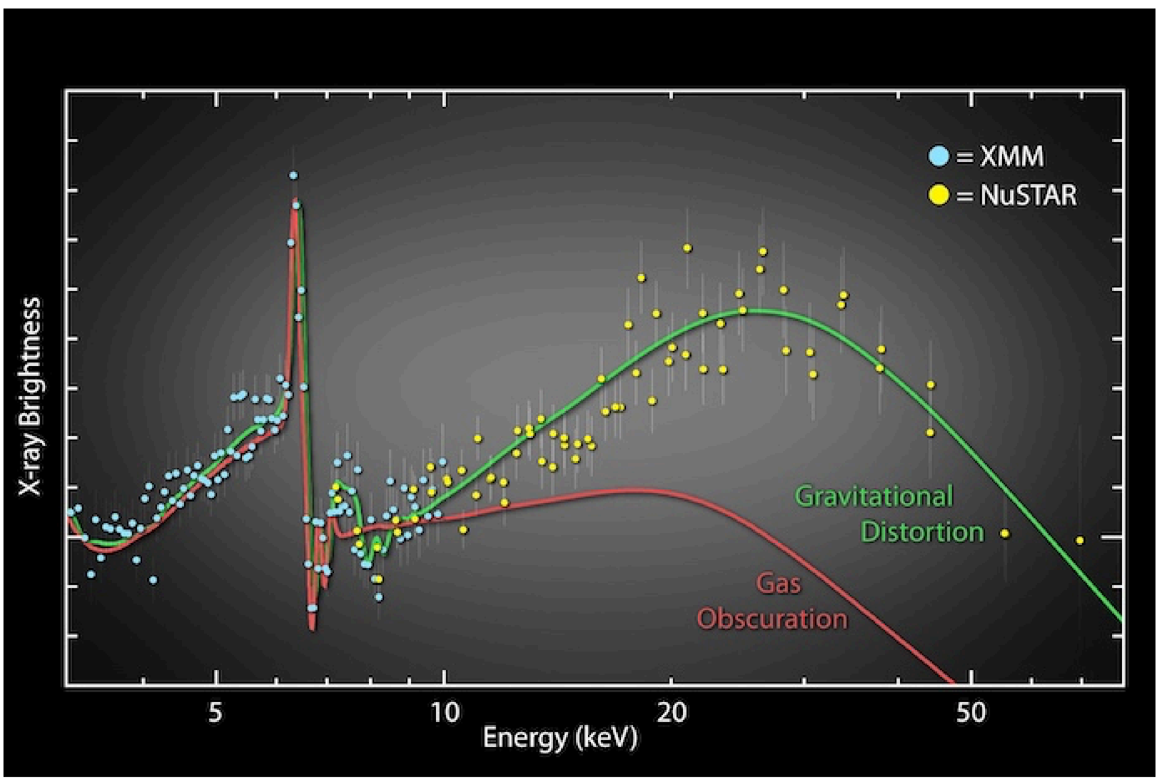
Dr. Behnam Pourhassan: Black hole entropy is directly proportional to its surface area, which is a remarkable and profound insight into the nature of quantum gravity. This relationship suggests that a black hole's information content is encoded on its boundary rather than distributed throughout its volume. This is a key aspect of holography, a principle stating that the physics of a higher-dimensional space can be fully described by a theory existing on its lower-dimensional boundary.

This idea's significance extends beyond black holes—it provides a deeper understanding of quantum gravity and spacetime itself. The fact that a black hole's entropy is determined by its surface rather than its volume aligns with the holographic principle, which proposes that all the information contained within a region of space can be represented by data residing on its boundary.

This perspective has led to major advancements in theoretical physics, including the AdS/CFT correspondence, which links gravity in a higher-dimensional space to a lower-dimensional quantum field theory. The link between black hole entropy and surface area is not just about heat and energy. It suggests something deeper about how the universe works - possibly that space and time come from quantum information stored on surfaces.

Jacobsen: How is Hawking temperature calculated? What does this tell us about a black hole's ultimate fate?

Pourhassan: Hawking temperature is found by studying how black holes emit radiation due to quantum effects near their event horizon. This radiation, known as Hawking radiation, causes the black hole to lose mass over time slowly. The temperature of this radiation depends on the black hole's properties, such as its size and gravity. This has important consequences for a black hole's fate. Since it continuously emits energy, it will gradually shrink and eventually evaporate completely if it doesn't gain more mass from its surroundings. This suggests that black holes are not eternal and that their information content is crucial in understanding the deeper connections between gravity, quantum mechanics, and thermodynamics.



Researchers using NASA's Nuclear Spectroscopic Telescope Array (NuSTAR) have, for the first time, demonstrated a reliable method to determine the spin rates of black holes.

Jacobsen: How can black holes undergo phase transitions? Is this akin to regular materials? If so, what are the extreme conditions for these phase transitions?

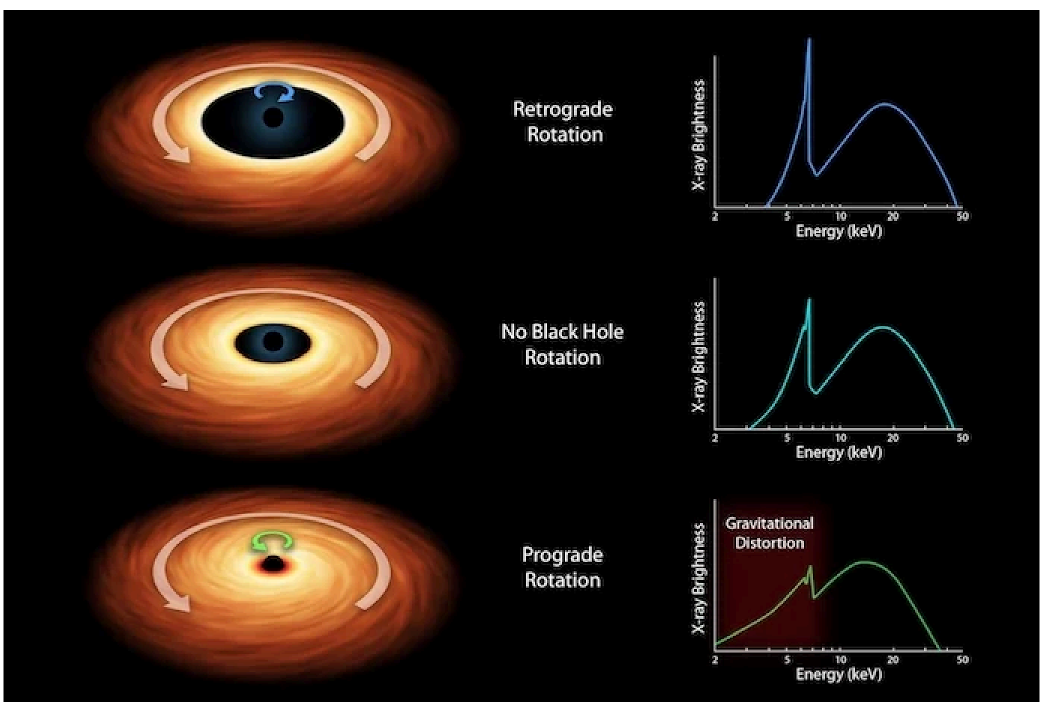
Pourhassan: Black holes can undergo phase transitions similar to regular materials, such as water turning into ice or steam. In black hole physics, these transitions are often studied using thermodynamic properties like temperature, pressure, and entropy. For example, in anti-de Sitter (AdS) space, black holes can exhibit a phase transition similar to the liquid-gas transition, where a small black hole can grow into a large one as conditions change.

These phase transitions usually occur under extreme conditions, such as high curvature, strong quantum effects, or external forces like a surrounding thermal bath. Studying these transitions helps us understand deep connections between gravity, thermodynamics, and quantum mechanics.

Jacobsen: How do quantum effects modify the formulae of classical entropy? What are the implications of this derivation?

Pourhassan: Quantum effects introduce corrections to the classical entropy of a black hole, usually appearing as additional terms beyond the standard expression. These corrections arise due to quantum fluctuations near the event horizon, affecting how information and energy behave in extreme gravitational fields.

One key implication is that these modifications help address the information paradox by providing a deeper understanding of how entropy behaves at quantum scales. Additionally, these corrections suggest that black holes might not completely vanish upon evaporation but could leave behind a remnant or release information subtly.



Black holes are extraordinary celestial bodies with gravitational forces so intense that they warp and bend space-time—the underlying framework of the universe.

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Jacobsen: What are the logarithmic corrections to black hole entropy? Are there implications for stability?

Pourhassan: Logarithmic corrections to black hole entropy arise from quantum and thermal fluctuations near the event horizon. These corrections modify the classical entropy expression by adding a term proportional to the logarithm of the black hole's area. They appear naturally in many approaches to quantum gravity, including string theory and loop quantum gravity. These corrections have important implications for black hole stability. They influence phase transitions, thermodynamic stability, and even the final stages of black hole evaporation. In some cases, they suggest that a black hole might reach a stable remnant instead of evaporating completely, which could have implications for the information paradox and quantum gravity.

Jacobsen: Does dark energy drive cosmic expansion? What is the lesser importance of this to physics and greater importance to cosmology?

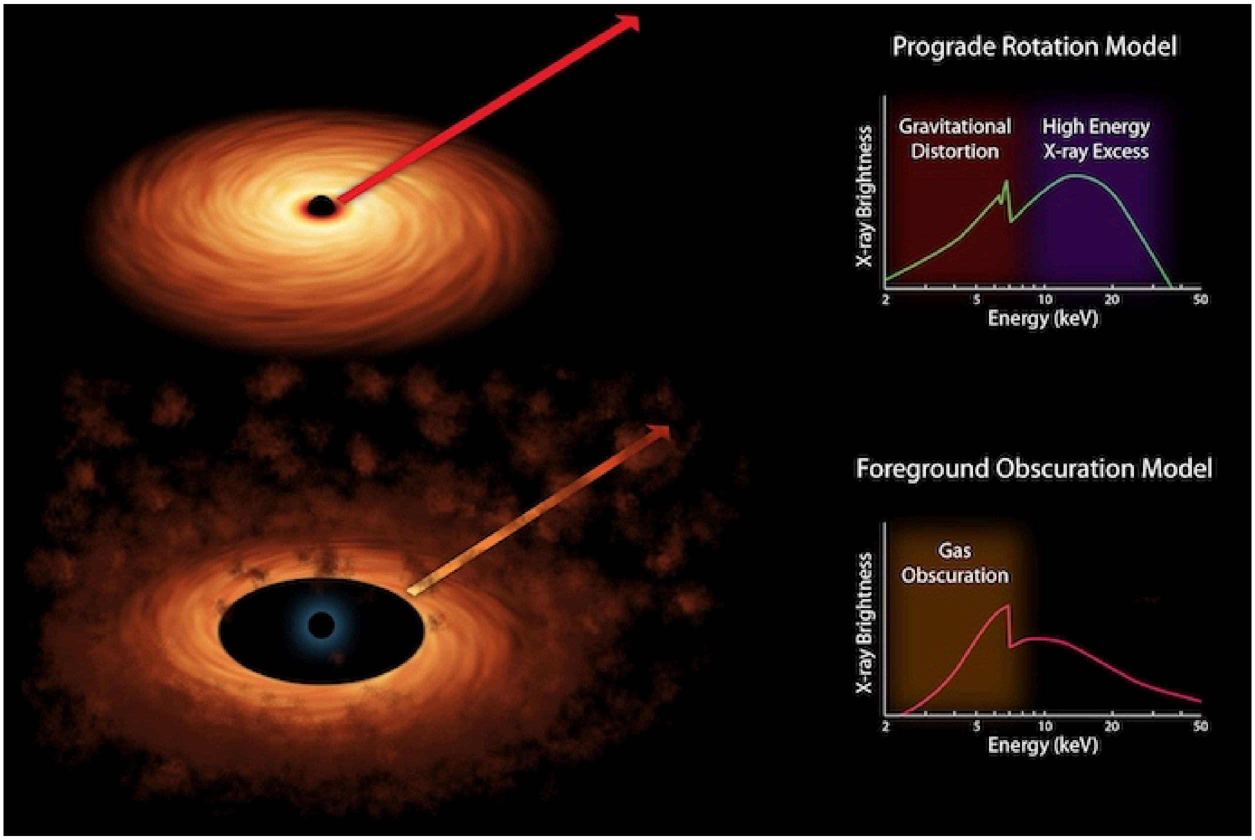
Pourhassan: Yes, dark energy is currently understood to be the main driver of the universe's accelerated expansion. It plays a central role in the Lambda Cold Dark Matter (ΛCDM) model, which is the standard model of cosmology. Cosmic expansion (i.e., the fact that the universe is expanding) results from the initial conditions set by the Big Bang. Dark energy, however, drives the universe's accelerated expansion, which was discovered in the late 1990s through observations of distant Type Ia supernovae. In the equations of General Relativity, dark energy behaves like a cosmological constant (Λ) — a form of energy that exerts negative pressure, causing the expansion to speed up rather than slow down.

Dark energy doesn't yet fit into the framework of particle physics. It doesn't interact with matter or radiation (as far as we know), and it hasn't been detected in lab experiments. It's more of a placeholder concept: we see its effects but don't know what it is. No current testable theories in quantum field theory or particle physics fully explain it.

Dark energy accounts for ~68% of the universe's energy content. It dominates the cosmos's fate and shape. So, even if we don't know what dark energy is, cosmologists must include it to accurately model and understand the universe's evolution.

Jacobsen: What are modified gravity theories?

Pourhassan: Modified gravity theories are alternative theories to Einstein's General Relativity (GR) that attempt to explain gravitational phenomena - especially things like dark energy, dark matter, and cosmic acceleration - without invoking unknown substances or energy forms. Instead of saying, "There must be something weird like dark energy making the universe expand faster," modified gravity theories say, "Maybe our understanding of gravity itself breaks down on large scales."



Researchers determine how fast supermassive black holes are spinning by analyzing the spectrum of X-ray light they emit, breaking it down into its component wavelengths.

Jacobsen: What distinguishes anti-de Sitter black holes from the generic idea of black holes?

Pourhassan: Great question. This touches on some deep ideas in theoretical physics, especially about where gravity meets quantum theory. When people say “black hole” generically, they usually mean one that exists in asymptotically flat spacetime - like in our observable universe, that includes Schwarzschild black holes (non-rotating, uncharged), Kerr black holes (rotating), and Reissner-Nordström black holes (charged), these solutions assume that far away from the black hole, space is flat (like our every day, large-scale view of the universe).

An AdS black hole exists in a universe with a negative cosmological constant - a curved background called Anti-de Sitter space. An AdS black hole is a solution to Einstein’s equations in this AdS background. So, AdS black holes differ from generic ones because they live in a negatively curved universe. That gives them very different boundary behavior and thermodynamic properties, making them especially important in theoretical frameworks like holography and quantum gravity.

Jacobsen: Is it possible to connect gravity with AdS/CFT correspondence in AdS space with quantum field theory?

Pourhassan: Yes — and that’s precisely what the AdS/CFT correspondence does: it connects gravity in AdS space with a quantum field theory (QFT) on its boundary. This is one of the most profound ideas in modern theoretical physics.

Proposed by Juan Maldacena in 1997, this conjecture says: A gravitational theory in (d+1)-dimensional AdS space is equivalent to a conformal field theory (CFT) living on its dimensional boundary. This is also called the holographic principle because a higher-dimensional gravitational theory (the bulk) is encoded by a lower-dimensional QFT (the boundary).

Jacobsen: How can mass in the graviton in massive gravity theories give insights into black holes and cosmic architecture?

Pourhassan: Massive gravity is a bold attempt to increase our understanding of gravity at a fundamental level, and giving the graviton a mass changes the rules of the game for how we think about black holes, cosmic structure, and even dark energy. In standard General Relativity, the graviton - the hypothetical quantum of gravity - is massless. Massive gravity theories propose that the graviton has a tiny but nonzero mass.

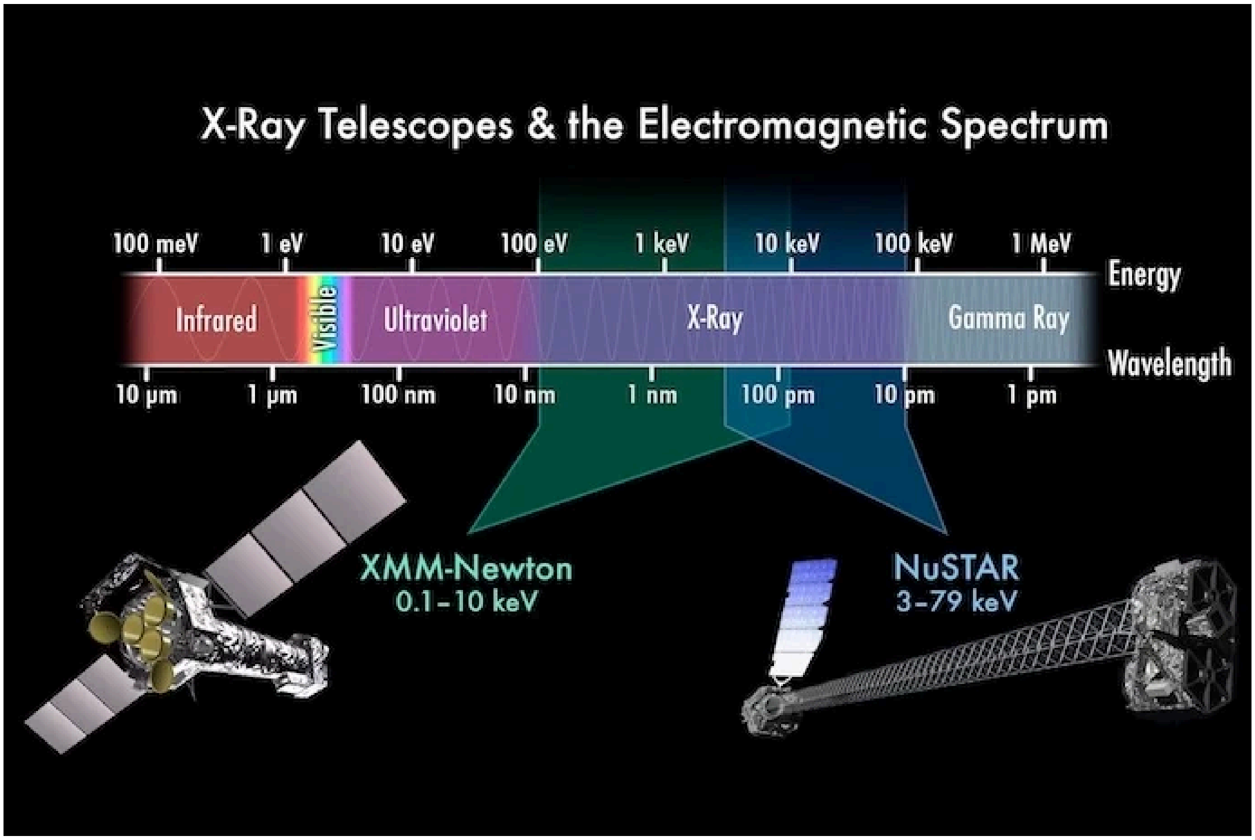
Black holes in massive gravity can differ from those in GR: They may not obey spherical solutions, which can be time-dependent. Unlike standard black holes, they can exhibit hair (i.e., non-trivial fields outside the event horizon). Their thermodynamics may change, affecting entropy and temperature. The gravitational field falls off differently - potentially modifying how black holes interact with surroundings or even merger dynamics (relevant for gravitational waves).

We might be able to test massive gravity through precision gravitational wave signals (like deviations in waveform tails or the speed of gravity). Adding mass to the graviton affects how gravity behaves on large (cosmic) scales: A massive graviton weakens gravity at large distances, mimicking the effects of dark energy. Some versions of massive gravity can explain the universe's accelerating expansion without needing a cosmological constant.

Jacobsen: What is the holographic principle? What does this mean for an informational view of black holes?

Pourhassan: The holographic principle (named by Leonard Susskind) is a profound and somewhat mind-bending idea from theoretical physics. It suggests that all of the information contained within a volume of space can be represented as a hologram - a theory that lives on the boundary of that space. In other words, the 3D reality we perceive might be encoded on a distant 2D surface. This idea originated from efforts to understand black hole thermodynamics and quantum gravity, particularly the information paradox related to black holes. The holographic principle flips our intuition. It suggests that spacetime and gravity might emerge from more fundamental, lower-dimensional quantum information.

Black holes aren't cosmic trash compactors that delete data — they're more like storage devices that encode it in a holographic way.



The chart illustrates the full range of the electromagnetic spectrum, with particular emphasis on the X-ray region.

Jacobsen: How do black hole thermodynamics compare to a van der Waals fluid?

Pourhassan: I like this question - this is where black holes get surprisingly thermodynamic and start acting like weird versions of everyday matter. Despite being exotic objects, black holes follow laws that look just like thermodynamics. Surprisingly, some black holes behave just like fluids - particularly a van der Waals gas. A van der Waals fluid is a more realistic model of a gas than the ideal gas law. It includes attraction between particles and a finite volume of molecules.

In AdS space, black holes can be put into thermal equilibrium with their surroundings. This setup gives them well-defined pressure, volume, temperature, and entropy like a fluid. Physicists like Robert B. Mann found that charged AdS black holes (like Reissner–Nordström-AdS) have thermodynamic behavior very similar to a van der Waals fluid. These black holes show first-order phase transitions between small and large black holes - just like the gas\liquid phase transition of ordinary matters.

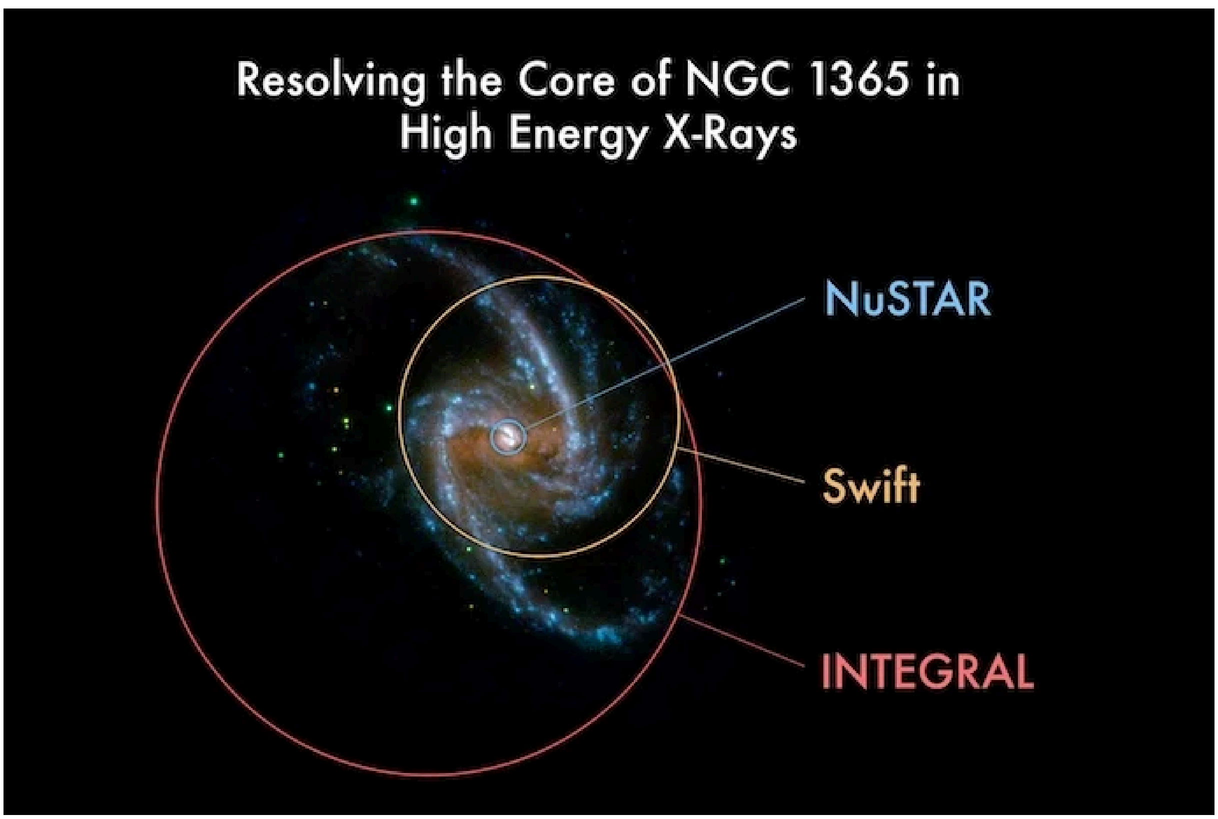
Jacobsen: How does electric charge influence a black hole's stability?

Pourhassan: Adding an electric charge to a black hole introduces new physical and thermodynamic behavior. A black hole with charge is called a Reissner–Nordström black hole (non-rotating) or Kerr–Newman (if rotating too). Its metric describes a black hole with mass, charge, and possibly spin. The presence of charge adds a repulsive term to the gravitational field. The resulting spacetime structure becomes more complex. In AdS spacetime, charged black holes show even more interesting behavior: They can be more thermodynamically stable than uncharged ones. There's a stable equilibrium temperature, especially for larger charges and larger AdS radius.

Jacobsen: How does merging nonlinear electrodynamics with gravity modify black hole solutions? Do any new effects come from this merger?

Pourhassan: Merging nonlinear electrodynamics (NLED) with gravity leads to modifications in black hole solutions by altering the behavior of the electromagnetic field within the gravitational context. In traditional general relativity, black holes are described by solutions like the Schwarzschild or Reissner-Nordström metrics, where electromagnetic fields behave linearly (i.e., the field strength is directly proportional to the charge). However, when NLED is introduced, the relationship between the electromagnetic field and its source becomes nonlinear, affecting the structure of black holes.

This nonlinearity can lead to new phenomena, such as the presence of regular (non-singular) black holes, where the singularity at the center is avoided. Additionally, NLED can modify the black hole's charge and mass distributions, potentially forming exotic black hole solutions with different thermodynamic properties, such as entropy or temperature behavior. In some cases, the introduction of nonlinear electromagnetic fields can lead to the existence of black holes with different horizons or altered stability properties, enhancing the range of possible black hole configurations and phenomena in gravitational physics.



Captured by the ultraviolet imaging camera aboard the European Space Agency's XMM-Newton telescope, this image reveals the striking spiral structure of the galaxy NGC 1365.

Jacobsen: What are cosmic strings?

Pourhassan: Cosmic strings are hypothetical, one-dimensional defects in the fabric of spacetime that may have formed in the early universe. These strings are incredibly thin but incredibly long, stretching across vast distances. They are remnants from the time just after the Big Bang, potentially created during phase transitions when the universe cooled and matter began to organize itself. Imagine them as incredibly dense, stretching lines of energy that may have significant gravitational effects on nearby objects. Although they haven't been observed directly, cosmic strings interest scientists because they could provide insights into the fundamental forces of nature, like gravity, and help us understand the very origins of the universe.

Jacobsen: How can statistical mechanics illuminate the microscopic nature of gravitational systems?

Pourhassan: Statistical mechanics helps to understand the microscopic nature of gravitational systems by focusing on the collective behavior of a large number of particles, such as stars or gas molecules, that make up these systems. Instead of studying each particle individually, statistical mechanics examines how the overall system behaves by considering averages and probabilities. In gravitational systems, like galaxy clusters or black holes, the interactions between particles (such as stars or gas particles) are influenced by gravity, which is a long-range force. Statistical mechanics can reveal how these particles distribute, evolve, and form structures like galaxies or black holes. It connects the microscopic interactions at the particle level to macroscopic properties such as temperature, pressure, and density, helping us understand phenomena like the distribution of stars in a galaxy or the behavior of matter near black holes.

Jacobsen: How does quantum information theory inform gravitational physics studying black holes? How are these quantum research ventures pursued at the Canadian Quantum Research Center?

Pourhassan: Quantum information theory plays a crucial role in understanding the behavior of black holes, especially in the context of their thermodynamics and the famous information paradox. One key area of focus is how quantum information behaves in extreme gravitational fields, like those near black holes. Quantum mechanics suggests that information cannot be destroyed. Yet, classical interpretations of black holes - especially the idea of the "event horizon" - suggest that anything entering a black hole would be lost to the universe, which creates a paradox. Quantum information theory helps to explore potential resolutions, such as the idea that information might be encoded in the radiation emitted by black holes (Hawking radiation) or that black holes might have an intricate quantum structure that preserves information in ways not yet fully understood. This theory bridges quantum mechanics and general relativity, pushing scientists toward a unified theory of quantum gravity.

At the Canadian Quantum Research Center, researchers delve into quantum information science to understand these extreme quantum phenomena. They explore foundational concepts like quantum entanglement and superposition and how these might apply in the gravitational context of black holes. Researchers might also study quantum computing models or use quantum simulations to explore how information might behave at the event horizon or in a quantum gravity framework.

These efforts aim to shed light on some of the universe's deepest mysteries by developing new theories and computational tools that could eventually help reconcile quantum mechanics with the general theory of relativity.

Jacobsen: Thank you for the opportunity and your time, Behnam.

Pourhassan: Thank you for the professional questions. I should add that the answers to most of these questions related to black hole thermodynamics are explored in detail in my book, *Thermodynamics of Quantum Black Holes: Holography*, which will be available online soon.

Science Communication, Humanism, and Time: An Interview with Jim Al-Khalili

Jim Al-Khalili & Scott Douglas Jacobsen

Dr. Jim Al-Khalili CBE FRS Jim is a theoretical physicist at the University of Surrey where he is a Distinguished Professor Emeritus of Physics. He received his PhD in nuclear reaction theory in 1989 and has published widely in the field. His current interest is in open quantum systems and the application of quantum mechanics in biology.

He is a prominent author and broadcaster. He has written 14 books on popular science and the history of science, between them translated into twenty-six languages. One of his latest books, *The World According to Physics*, was shortlisted for the Royal Society Book Prize. He is a regular presenter of TV science documentaries, such as the Bafta-nominated *Chemistry: A Volatile History*, and he hosts the long-running weekly BBC Radio 4 programme, *The Life Scientific*.

Jim is a past president of the British Science Association and a recipient of the Royal Society Michael Faraday Medal and the Wilkins-Bernal-Medawar Medal, the Institute of Physics Kelvin Medal and the Stephen Hawking Medal for Science Communication. He received an OBE in 2007 and a CBE in 2021 for ‘services to science’. Al-Khalili is the vice president of HumanistsUK and served as the organization’s past president.

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Scott Douglas Jacobsen: Only been about a year since last talking this time - an improvement! I am no longer at the horse farm and back from Ukraine. To today, though, while our senses tell us one thing, our systems of logic tell us another thing, at times. Our scientific methodologies pierce the veil better than either alone. Why does so much of science give us such counterintuitive and seemingly contradictory ideas about the universe?

Dr. Jim Al-Khalili: Well, what we regard as intuition and common sense are formed by our experiences of the world around us that we encounter. But our senses only perceive a narrow slice of reality. Think about vision: the human eye only sees those electromagnetic waves in the so-called 'visible' range. But visible light is no more real than radio waves or x-rays - they are all light. Similarly with length scales: what we are familiar with on the everyday scale is by and large explained by Newtonian mechanics, but reality on the quantum scale or the cosmic scale is very different. We therefore regard this as counterintuitive, but that's just because we don't experience reality directly on those scales. In general, I would argue that wherever we see contradictions in our scientific understanding of the universe, it is because we have an incomplete understanding of the laws of nature.

Jacobsen: Let's take a case example from your Twitter October 30-31, 'Physics in History' said, (https://x.com/PhysInHistory/status/1851864985997386057), "Does time flow in one direction because of entropy, or are there deeper reasons for its arrow?"
You replied (https://x.com/jimalkhalili/status/1852055799759278491), "I think you mean does time POINT in one direction because of entropy. Flow is an illusion. Many physicists would say yes. But there may be deeper reasons that bake an arrow into the universe (possibly due to quantum entanglement) and then entropy follows the arrow."

These distinct ideas - flow, directionality, entropy, time, quantum, entanglement – are fascinating and subtle. What does your response mean more fully?

Al-Khalili: The way we perceive time in our minds - what is often called manifest time - can often be very different from what we know about the true objective nature of time, our physical time. So while we have the strong sense that time flows (and we can debate whether this feels like time flowing past us or us moving through time) there is nowhere in the laws of physics that says time actually flows at all. In fact, our current best theory of time, Einstein's relativity, says that time just 'is'. It exists. But what we do have is an ordering of events in some sequence: cause comes before effect, yesterday is different from tomorrow, and so forth. So even if time doesn't flow, it at least has a direction. Think of a deck of cards arranged in increasing value in a line on a table; there is a direction to this increase in value, say left to right, but nothing is flowing. Our current view of physics is that time is like this. But to delve deeper into the origin of this arrow of time and whether it is solely down to increasing entropy, or disorder, in the universe, or something deeper, requires more subtle debate. Thankfully for humanity, I am currently writing just such a book that will be out next year!

Jacobsen: With that case example, what is the process there when breaking down science into manageable bits for those without the training?

Al-Khalili: I think for short, sharp and impactful posts on social media, all one can do is whet the appetite for a deeper understanding: to hint at exciting ideas that need a little more time and effort to absorb. I see such posts as a way of provoking discussion and thinking. Hopefully, firing up people's curiosity can then lead to a more measured discussion.

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Jacobsen: Here's something I haven't asked you. Nature is non-supernatural, so naturalism is reality and vice versa. From a physics argument, to quote Schrodinger, "What is life?" How does physics and the physics of biology inform an evidence-based distinction between life and death?

https://en.wikipedia.org/wiki/What_Is_Life%3F

Al-Khalili: I think that science has yet to fully understand the distinction between life and non-life. We have many definitions of what it means to be alive – and by this I don't mean human life with consciousness, but anything that can make copies of itself and evolve according to Darwinian evolution. From a physicist's perspective, life means a complex system that can maintain order, complexity and an off-equilibrium state of low entropy. There is no magic here; no ingredient of vitalism that endows matter with 'lifeness', But it is still a puzzle. It's the reason we have not been able to create artificial life yet. So, although Schrödinger posed that question in the title of his book, we are still trying to find a definitive answer 80 years later.

Jacobsen: Following from the previous question, a pertinent issue to British humanists is dying with dignity. Most Brits support assisted dying.

(https://humanists.uk/2024/10/16/new-poll-shows-every-constituency-backs-assisted-dying/)

How does a naturalistic, evidence-based view inform the humanist position and the humanistic option of assisted dying, i.e., most Brits are humanistic on this issue?

Al-Khalili: This is an interesting question. Yes, it is certainly the case that most Brits, according to recent surveys, support assisted dying. And I would also argue that the majority of Brits, if you asked them and analysed their worldviews, would probably identify with humanist thinking. But the puzzle is that for a humanist, like me, this life is all there is; there is nothing after we die. So some might find it strange that we support assisted dying. Surely a humanist would wish to prolong life for as long as possible since it is so valuable. But I think that is to miss what humanism is also about, which is a respect for all human life, and part of that is to allow people to choose to die with dignity. We are all going to die one day and we do not exist, in any sense, after we die any more than we existed before we were born. While we are alive therefore, we should make the most of it, and part of that is to alleviate suffering for those at the end of their time.

Jacobsen: Why was Niels Bohr wrong when he said, "It is wrong to think that the task of physics is to find out how nature is. Physics concerns what we say about nature"?

Al-Khalili: This view, which grew out of the philosophy of logical positivism and instrumentalism, is one that was pushed by the Copenhagen school of quantum mechanics, led by the likes of Bohr, Werner Heisenberg and Wolfgang Pauli. It is known in philosophy as epistemology. But I have always disagreed with it. I prefer an ontological philosophy. On this point, I side with Einstein who always argued that it is indeed the job of physics to get as close as possible to the truth of what nature is. There is an objective reality out there. We may never fully understand it but we can try to get closer to it. In this sense, when it comes to how we understand the universe, particularly on the quantum scale, I am a realist. There is a real world out there that exists independently of what I think. I want to know what that real world is.

Jacobsen: What would constitute an ontological interpretation of quantum mechanics?

Al-Khalili: There are several ontological interpretations of quantum mechanics, which oppose the epistemological Copenhagen view. The best known is probably the Everettian many-worlds interpretation. There is also the 'spontaneous collapse' model or, my personal favourite, Bohmian mechanics. All these interpretations of quantum mechanics assume there is an objective reality independent of our senses and that we can say something about it that is more than just predicting results of observations. They are real descriptions of reality rather than just a recipe for what we should expect when we carry out a measurement.

Jacobsen: What are the newest updates on emeritus status now, and the book on time mentioned in the previous interview?

Al-Khalili: Well, after 32 years of unbroken undergraduate teaching and an increasing administrative load at Surrey, I am enjoying my new-found freedom to focus only on those activities that I enjoy: my research, interacting with my PhD students, my writing and my broadcasting. My wife keeps reminding me that I am officially now retired, but I am as busy as ever (well, OK, not quite as busy, as I can pick and choose how I use my time now). On that front, most of my time is currently being spent writing my new book on the nature of time, which I need to get back to after this interview! It's coming along nicely and I keep thinking of more things to say, so it's probably going to end up being my most ambitious writing project to date.

Jacobsen: What are your favorite humanism coda quotes?

Al-Khalili: Probably the usual suspects: You don't need God to be good. This is the only life we have so let's not waste it.

Jacobsen: Thank you for the opportunity and your time, Jim.

Al-Khalili: It was nice chatting to you. Now back to the mysteries of Time.

Shaping the Future: Ruslan Salakhutdinov on AI, AGI, and Society

Ruslan Salakhutdinov & Scott Douglas Jacobsen

Ruslan Salakhutdinov, a distinguished UPMC Professor of Computer Science at Carnegie Mellon University's Machine Learning Department, stands as one of the most prominent figures in artificial intelligence research today. With a focus on deep learning, probabilistic graphical models, and large-scale optimization, Salakhutdinov has consistently been at the forefront of innovation in AI.

A defining aspect of his career has been his collaboration with Geoffrey Hinton, his doctoral advisor and the pioneer behind "deep belief networks," a transformative advancement in deep learning. Since earning his Ph.D. in 2009, Salakhutdinov has authored over 40 influential publications, exploring topics ranging from Bayesian Program Learning to large-scale AI systems. His groundbreaking contributions have not only advanced academic understanding but also propelled practical applications of AI in industry.

[Editors' Note: https://www.cs.cmu.edu/~rsalakhu/]

Salakhutdinov's tenure as Apple's Director of AI Research from 2016 to 2020 marked a pivotal period in his career. During this time, he led significant advancements in AI technologies. Subsequently, he returned to Carnegie Mellon and resumed his academic pursuits, further cementing his role as a leader in the field. In 2023, he expanded his influence by joining Felix Smart as a Board Director, channeling AI's potential to enhance care for plants and animals.

A sought-after speaker, Salakhutdinov has delivered tutorials at renowned institutions such as the Simons Institute at Berkeley and the MLSS in Tübingen, Germany. His research, widely cited by peers, underscores his enduring impact on AI and machine learning. As a CIFAR fellow, he continues to inspire the next generation of researchers while pushing the boundaries of machine intelligence.

Salakhutdinov's journey in AI traces back to his undergraduate years when he was sparked by the seminal textbook *Artificial Intelligence: A Modern Approach*. His early work with Geoffrey Hinton laid the foundation for innovations in deep belief networks and deep learning. Today, his research focuses on building robust, autonomous AI systems capable of independent decision-making. Amidst the challenges of reliability, reasoning, and safety, Salakhutdinov's work bridges the gap between cutting-edge theory and practical application, shaping a future where AI systems enhance human creativity and problem-solving.

Scott Douglas Jacobsen: What first drew your interest to artificial intelligence as opposed to the intricacies of human intelligence?

Ruslan Salakhutdinov: My first interest in AI was during my undergraduate studies in North Carolina. A book by Peter Norvig and Stuart Russell, *Artificial Intelligence: A Modern Approach*, intrigued me. It was published in 1995 and sparked my interest in AI.

I decided to pursue graduate work in AI and applied to several schools. Luckily, I ended up at the University of Toronto, where I eventually started working with Geoffrey Hinton. A great turn of events led me to work in AI. I have always been curious about machines that can learn independently and perform creative tasks. The concept of building systems that can learn fascinated me when I began my undergraduate studies in the late nineties. At that time, the term "AI" wasn't very popular; during my graduate work, the focus was more on machine learning and statistical machine learning.

The field was fairly statistics-oriented because it was perceived as a proper discipline. AI was often seen as a domain for people building decision support systems. Working with Geoffrey Hinton and his lab completely revolutionized my work. In the early days, around 2005 or 2006, Geoffrey Hinton began promoting deep learning and learning multiple levels of representation. I had just started my PhD, so I was in the right place at the right time.

As with anything in life, timing is crucial. Ilya Sutskever, a co-founder of OpenAI, was my lab mate. We sat beside each other, and a few others were now driving much of this work across different companies and universities.

Jacobsen: Geoffrey Hinton has become a household name over the past year, largely due to his warnings about artificial intelligence. On the other hand, Eric Schmidt, the former CEO of Google, has offered a more balanced perspective. He emphasizes the need to understand and control AI systems and even suggests we might need to "pull the plug" if they act unpredictably.

Meanwhile, Ray Kurzweil's visions of the law of accelerating returns and his almost spiritual pursuit of merging with AI to explore the cosmos evoke shades of Carl Sagan. The discourse surrounding AI is as diverse as the field itself.

[Editors' Note: https://en.wikipedia.org/wiki/Transhumanism]

Similar to a vector space, this diversity reflects how terms like AI, AGI (Artificial General Intelligence), and ASI (Artificial Superintelligence) carry varied interpretations. Why do you think these differing definitions persist?

Salakhutdinov: We lack a set of benchmarks or a standardized set of problems that would allow us to define these terms clearly. If we have a system that solves those problems, we've reached AGI. Or if we have a set of problems we're solving, we've reached ASI. So, the definitions depend on whom you talk to. People like Geoffrey Hinton and Eric Schmidt say the academic community has potentially huge, existential risks.

And then you have people on the other side who say, look, we're going to reach a point where these systems will be very intelligent. They'll be smart and, at some point, will reach superintelligence. Still, we will probably go to the point of existential risk. There are risks associated with AI in general, and people are looking into those. One area that I specifically work on at CMU is building agentic systems or AI that can make decisions or take actions independently. So think about a personal assistant where you can say, "Hey, buy me the best flight I can get to San Francisco tomorrow." The assistant will find the information and book the flight for you.

You can think of it as a personal assistant. And, of course, risks are associated with this because now you're moving from systems like ChatGPT, where you ask a question and get an answer, to systems where you give a task, and the agent tries to execute that task. My personal feeling is that when it comes to AGI, I think about autonomous systems that can make decisions.

Where we are right now is unclear because we are experiencing rapid progress with ChatGPT and many other advancements. Will we continue this exponential growth or hit a ceiling? We'll eventually hit the ceiling, and getting the remaining 10% or 15% of progress will be challenging, so these systems will be very useful.

At what point we will reach the true level of AGI - systems that are general enough to do anything for you - is unclear to me. People have predictions. For example, Geoffrey Hinton initially thought it would take less than 100 years. With the advent of models like ChatGPT, predictions have been accelerated to around 30 years. He's saying it might be 10 years, but there's still much uncertainty.

Predicting anything beyond five years is hard because AI development can either accelerate with systems getting better, smarter, and more autonomous with strong reasoning capabilities - as we're seeing with OpenAI's models like GPT-4 and GPT-3.5 that can perform complex reasoning and solve hard math problems - or it could progress more gradually.

Jacobsen: In the coming years, we may see the emergence of profoundly analytical tools. When we speak of agency in AI, the term holds a very different meaning compared to human or animal agency. This evolution in large language models and AI systems seems to herald a new era. What are your thoughts on these agentic capabilities?

Salakhutdinov: You want to build systems that can be your assistant. Think of it as a system that handles all your scheduling, tasks, and whatever you need. It's your financial adviser that gives you advice on your finances. It's your doctor that gives you advice on your health. At some point, when I have conversations with my colleagues about this, some are saying that if you have an AI assistant that can do a lot for you, that's close to AGI.

Some people would call it AGI because the problem we see right now is that GPT is the best in coding - it's the best in speed coding contests. People try to code something within a fixed period, and these systems are better than humans. And I said, "Okay, that's good." And he said, "Well, aren't you amazed? We have systems that can outcompete competitive coders right now."

The reason why it's impressive but not making big rounds is that these systems are still not reliable. It's not like I can delegate a task to the system and be 100% sure it will solve it. 80% sure that solving a task is not enough. This notion of hallucination and robustness in the system is missing at this point. That's why, for example, in coding, it hasn't replaced professional coders. It's useful as a tool, but it hasn't emerged to the point where I'm replacing all of them with AI if I have an organization with programmers.

AI is helping them write better code, but it hasn't gotten to the point where this robustness and reliability is achieved. It's like having a personal assistant, which is 80% correct. I don't want a personal assistant who books my flights 20% of the time incorrectly. Right? That's just not acceptable. So, this is where we are at this point. To get to AGI, we need the system to be robust to hallucinations. It's not there yet.

Jacobsen: Are governments, policymakers, and economists equipped to handle the sweeping changes AI demands? For example, these systems will likely require access to significant amounts of personal data to make decisions, raising urgent concerns about data privacy. Additionally, the economic landscape could shift dramatically as corporations opt for AI solutions that outperform human employees. How should society navigate these dual challenges of privacy and employment disruption?

Salakhutdinov: These models we see today are very data-hungry and improve with more data, especially personalized data. If they know you, the decisions they make can be much better. That aspect is going to be important. There are regulations regarding what that would look like, which will soon be coming into place. These models are not yet at the point where they can be reliably deployed or fully useful.

Economists are doing some work on job displacement. How much of it will happen is still not clear. Still, someone gave me an example of a company that laid off several translators from one language to another because machines can do it better, cheaper, and faster. Translation from English to French is just one example. That's worth considering, especially as these systems improve.

One question I always have is, when these systems reach the point where certain parts of our economy see displacement, what will governments need to do to retrain people? The next two years will be critical because if progress continues as it has over the last couple of years, the changes will be fairly quick. Usually, with humanity, if it takes a generation or two to adapt, it's fine. But it's a fast change if it happens over five to ten years. So yeah, that's worth considering, as well as closely tracking how these models progress. By 2025, we will see this every year—an iteration of models coming out, like GPT-2, GPT-3, GPT-4.

We're still waiting for GPT-5. Google has Gemini 2, you know, Gemini 2.4. It's like, and this year will also be interesting because it's the next stage of what's frontier-based models, which consume more data and computing. So the question this year is, what will that gap be if we see GPT-5?

Jacobsen: Eric Schmidt jokingly remarked that Americans might one day turn to Canada for hydropower due to the immense energy demands of advanced AI systems. What do you make of this observation, and how might the energy consumption of AI shape global resource dynamics?

Salakhutdinov: That's true. And as these models become bigger, there's now thinking about reducing the cost because you can't afford it otherwise. More research should be done to build these models more efficiently and train them with less computation. Otherwise, the cost is going to be prohibitive.

Jacobsen: Jensen Huang recently noted that we are approaching the end of Moore's Law, yet he highlighted transformative announcements at CES suggesting new hardware and software efficiencies. He described this as an "exponential on an exponential." How do these compounding efficiencies shape your view of AI's trajectory?

Salakhutdinov: So that's true - for example, the hardware. If you look at NVIDIA, for example, some of their latest GPUs have massive improvements compared to five years ago. One thing is that as we achieve these efficiencies, we are reaching the point where we're training these models on all of the Internet data. So, everything available goes into these models. And if you think about it, there's no second or third Internet. So, data is limited based on what we have access to.

Much data is in the video space and images, like other modalities and speech. However, potentially, there will also be data that we call synthetically generated data—data generated by models that we can use to train and continue improving our models.

Jacobsen: There's a concept I've been reflecting on - where we rely on limited data and generate artificial datasets through statistical extrapolation. What is the technical term for this approach, and how central do you see it becoming to AI advancements?

Salakhutdinov: That's what artificial data means. For example, as these systems improve, you can generate artificial data from your model. There are ways of filtering and cleaning this data, which now becomes training data for the next model.

There are these bootstrapping pieces that you can do that work reasonably well. We still can't just train on artificial data.

So, we still need real data. And how do we get this real data? I suspect multimodal models will use images, videos, text, and speech in the future. There's a bunch of research happening—my former student, now a professor at MIT, is looking at devices that collect data and building these foundation models based on that.

Now, compute is the case; data is the main workhorse. But data is important because you need to be able to clean it and curate it. I remember Microsoft doing this funny thing early on, announcing the Copilot project around 2022, right after ChatGPT. They were training the models, and somebody told Copilot, "Well, 2 + 2 is 5." And the Copilot would say, "No."

"It's two plus 2, which is 4." Then you say, "No, it's five because my wife told me it's 5." The Copilot would say, "Okay, it's 5."

You know? So, things of that sort. “I agree with you. If you insist, I agree with you.” Or it would say, “Yeah.”

Or, at some point, it would say, “No, that’s incorrect.” And the user would say, “Well, you’re stupid.” And the Copilot would say, “Well, you’re stupid.” And so you get into this conversation where you’re an idiot. The Copilot would call you an idiot.

It would do this because much of the conversational data was taken from Reddit. If you look at Reddit, some conversations say, “Oh, here’s the right thing.” And somebody says, “No, you’re an idiot. It’s this thing.”

If you train on data like this, you get similar behaviour because the model statistically learns how conversations go. This is where mitigations come in: cleaning the data and understanding what’s needed. That’s also part of the process of building these models.

Jacobsen: Do we have a theoretical framework for determining the ultimate efficiency of a single compute unit? Or are we still in the realm of empirical guesswork?

Salakhutdinov: Yes. There is something called scaling laws.

The scaling laws were the idea that came up: “Look, we’re building a 500,000,000,000-parameter model. How much data do we need? What kind of accuracy do we expect to get? It’s very expensive to run this model, right?”

You can only do a single run to get that model. You can’t, like, try. And so what would happen is that you take smaller models and build these curves by saying, “Okay, this is how much data I have, this is how much compute I have, this is the accuracy that I get.”

“If I increase the data but keep the computer, this is the accuracy. If I increase the data and compute, I will get this.” So, you build this on small models and extrapolate further. And you say, “Okay, if I have that much more computing and data, this is the accuracy I’m expecting to have.” That was a guiding principle for a lot of existing model buildings.

But it’s also very hard to predict. Nobody’s been able to say, “Look, if we triple the compute and we triple the data, we’re going to reach AGI, or we’re going to reach ASI, or we’re going to reach the point where.” We get these scaling laws up to some point, but we don’t know what that will look like beyond.

Hard to predict. There is something whose initial thinking was that we throw more data, we throw more computing, and we get better models, which is what the industry is doing. There’s a second paradigm, which is what’s called test-time compute or inference compute, which is what these reasoning models are doing, which is to say, “Well, if you let me think more for a specific problem, if I spend more compute thinking about the problem, I can give you the answers.”

So, that’s part of the scaling laws to say we can get better systems. But again, no one has clearly defined what it would mean to reach ASI or AGI, so we are still not there. It’s not clear whether we’re going to get there.

Jacobsen: When we talk about AGI and ASI, the definitions seem to hinge on a mix of factors: computational power, neural network efficiency, and even evolutionary adaptability. Some argue that framing AGI around human intelligence sets a false benchmark, as human cognition itself is specialized and full of gaps. Should we redefine intelligence benchmarks in AI to account for these nuances?

Salakhutdinov: That’s a very good question. People associate AGI with human-level intelligence. But it’s unclear whether these systems can match human-level intelligence. Because ChatGPT or any large language models are better at math than most people, does this mean they’re intelligent? There is something about human intelligence where you can extrapolate and reason and do things that machines can’t, at least at this point. They require these: There is an example where a machine can solve math or Olympiad competitions. But then, when you ask it, like, “What is bigger, 9 or 9.11?” the model gets confused and says, “Well, nine is bigger than 9.11.”

Jacobsen: There are clear gaps in AI systems’ reliability—areas where common sense might dictate one course of action, but machines falter. While AI excels in tasks like drafting and summarizing, it struggles with others, like physical intelligence in robotics. A robotics expert once quipped that the first company to build a robot capable of unloading a dishwasher will become a billion-dollar enterprise. What are your thoughts on this divide between theoretical AI capabilities and practical applications?

Salakhutdinov: It is. But it still gives you this notion that it’s very hard to predict because, 10 years ago, people would have thought that building creative machines—machines that can draw creative pictures or write creative text—would be far more difficult than the robot unloading your dishwasher. And it’s just completely the other way around at this point.

I can prompt them all. They can do very good creative writing for me, improve my writing, generate realistic-looking images, and compose things in interesting ways—for designers, for example. These are amazing tools.

It points to the problem of predicting five years. People like Geoffrey Hinton, Eric Schmidt, and others are ringing the bell because they say, “Look, there is a non-zero chance these models will become very dangerous.” And I buy that. I don’t buy the whole Skynet future. These robots—where these models or AIs will say we don’t need humans and have full control. I don’t see that in the future, but as I’ve mentioned, it’s always hard to predict what will happen in five to ten years.

So, we need to consider everything. I was recently talking with Geoffrey Hinton, and I asked him, “Why are you so worried?” I think he was saying he’s worried but wants to make sure that some of the resources are allocated to safety research and, like you said, understanding the economy, job displacement, how these systems can be more robust, and how to conduct safety research.

That has never been the priority, at least until now. I agree with that. We need to do more work, research, and more—people are focusing more on capabilities and building more capable and better models. At the same time, we need people who understand these models' safety aspects, robustness, economics, etc.

Jacobsen: Among your peers in the AI field, who do you consider the most consistently accurate in their predictions? Is there a figure whose insights have particularly resonated with you?

Salakhutdinov: This is a difficult question. I don't know anyone who has consistently been accurate in their predictions.

Jacobsen: I wondered if the public has an accurate picture because they use many of the same terms. The definitions are a bit off. That leads to too much confusion about how people report this to the public and how they are taking it in. A long time ago, AI was about machine learning, statistical engines, etc. Still, these were quite distinct areas of specialization. They were almost niche. Now, though, they're front and center as if they're exactly one thing. That's probably the area of confusion, but this will help clarify. Nice to meet you, and thank you so much for your time today.

Salakhutdinov: I appreciate it. Nice meeting you as well. Thanks for doing this.

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Conversation with Rick Rosner on Hollywood Schmollywood

Rick Rosner & Scott Douglas Jacobsen

Abstract

This interview explores the insights of Rick Rosner, a seasoned television writer and producer, in conversation with Scott Jacobsen. The discussion delves into the evolution of celebrity behavior from the 1970s to the present, highlighting the transition towards more responsible conduct. Jacobsen reflects on the dynamics of fame as a tool for creative endeavors and the balance celebrities maintain between their public personas and private lives. Key topics include the role of charisma and social skills in achieving success, the importance of authenticity and ethical behavior, and the impact of political climates on public figures. The interview also examines the motivations behind celebrity interviews, the public's fascination with personal relationships and vulnerabilities of celebrities, and the shift towards more mindful and ethical

behavior in modern celebrity culture. Additionally, Jacobsen shares personal anecdotes illustrating the influence of charisma and the diverse paths to success within the entertainment industry. This conversation provides a comprehensive understanding of contemporary celebrity dynamics and the factors contributing to sustained public admiration and professional longevity.

Keywords: Authenticity, Charisma, Celebrity Culture, Ethical Behavior, Entertainment Industry, Fame Dynamics, Media Engagement, Political Influence, Public Persona, Public Relations, Social Skills, Success Factors

Introduction

Rick Rosner, a notable television writer and producer with contributions to acclaimed shows such as *Jimmy Kimmel Live!* and *The Man Show*, shares his perspectives on the shifting landscape of celebrity culture in an in-depth interview with Scott Douglas Jacobsen. With a career spanning various unconventional roles and recognized for his high IQ and diverse experiences, Rosner provides valuable insights into how fame is leveraged creatively, the balance between public and private identities, and the evolving expectations placed upon celebrities. This interview, conducted in January 14, 2025 and published on January 15, 2025, captures Rosner's reflections on the maturation of celebrity behavior, the role of authenticity in public life, and the intricate interplay between personal ethics and professional success in the entertainment industry. The conversation also touches upon the influence of political climates on celebrities' public stances and the enduring public fascination with the personal lives of public figures. Through personal anecdotes and professional observations, Rosner elucidates the complexities of maintaining relevance and integrity in a highly scrutinized and dynamic media environment.

Section 1: Evolution of Celebrity Behavior

Scott Douglas Jacobsen: In 2024, you suggested I start interviewing celebrities or media personalities. Since then, I have received emails with specific hooks pitching these individuals. Did your suggestion and the subsequent publication of my work contribute to this? I am not certain. However, celebrity interviews tend to generate the most excitement. This is demonstrated by the long-standing success of People Magazine, which has been in publication since 1974, surpassing its 50th anniversary. With celebrities, there is a natural advantage - audiences are familiar with them and want to learn more. Since the Trump era, and perhaps even earlier, public life has become increasingly politicized.

Rick Rosner: As a result, celebrities often take public stances that attract significant interest. For instance, Taylor Swift has adeptly shown her political sympathies without overly politicizing her image. Meanwhile, it was recently reported that Carrie Underwood might perform at a politically charged event, which sparked backlash. In a world oversaturated with content, celebrity interviews remain highly engaging.

Section 2: Motivations Behind Celebrity Interviews

Jacobsen: What do celebrities seek from interviews when the focus is not on promoting their next project, in your experience?

Rosner: Celebrities often seek to be understood as multidimensional individuals beyond their professional accomplishments. This perspective is often successful. For example, Pamela Anderson is making a significant comeback with *The Last Showgirl*. Interviews have highlighted her strong performance and intellectual engagement with acting as a craft, moving beyond her previous image as a star of *Baywatch* or someone associated with public controversies. Audiences tend to support celebrities who appear relatable and genuine. On the other hand, they are equally fascinated by celebrities behaving poorly. Recently, Mel Gibson appeared on a podcast promoting Ivermectin as a cancer cure, spreading misinformation. This drew criticism, yet people would likely be equally interested if Gibson changed their perspective and demonstrated a more informed and positive approach.

Section 3: Public Interest in Celebrities

Jacobsen: Why are people so interested in celebrities?

Rosner: One reason is that we already know much of their stories. Another is that we want them to be deserving of our interest. Celebrities have immense resources, agency, and wealth, and we want to see how they use their power. We cheer for their relationships, even when we expect them to fail. For example, Jennifer Lopez and Ben Affleck recently got back together. This might be their third time as a couple. People want it to work out but are intrigued by its potential to fall apart. J.Lo is known as a diva but doesn't seem unkind. Despite some personal struggles, Ben Affleck comes across as intelligent, kind, and fun. People generally want good things for him. He was married to Jennifer Garner, who is widely respected and seems genuinely decent. When we see celebrities with every advantage face challenges, we question how the rest of us will manage. What does that mean for everyone else if they struggle to make relationships or personal goals work despite their resources?

Section 4: Celebrity Activism and Responsibility

Jacobsen: Which celebrities have impressed you with their commitment to causes outside Hollywood, even after achieving fame?

Rosner: Any celebrity who becomes knowledgeable and active in a cause stands out. Leonardo DiCaprio, for instance, speaks about environmental issues and seems reasonably well-informed. However, he's criticized for using yachts and private planes, contributing to the pollution he advocates against. George Clooney also comes to mind. He is knowledgeable and upstanding and has championed causes like protecting the oceans. Additionally, Clooney has actively supported Democratic political candidates and worked to nudge President Biden on policy matters. When George Clooney exited the race for office, reactions varied. However, he comes from a political family - his father ran for office - so he understands the landscape. He also seems like a genuinely decent person. When he became rich and famous, he gave each of his friends a million dollars, reasoning that if he could enjoy financial relief, why shouldn't his friends share that comfort? This generosity reflects someone who values others. My former boss was similarly charitable. I know he's incredibly informed from years of working with him, particularly on random subjects. He's highly tech-savvy, always online, and can quickly educate himself on nearly any topic. Many celebrities share these traits - surprisingly knowledgeable and smart, which benefits them in the entertainment industry.

Section 5: Intelligence and Success in Acting

Jacobsen: Do you think intelligence correlates with acting success?

Rosner: To a degree, yes. Successful actors often exhibit intelligence because it enhances their craft. While some may succeed early in their careers due to extraordinary physical attractiveness, sustaining a long-term career often requires intelligence, intuition, or hard work.

Jacobsen: How would you assess their social astuteness and emotional sensitivity?

Rosner: The entertainment industry is full of individuals with exceptional social skills, almost to the point of what could be called "reverse autism." Many performers have heightened social understanding and intuition, which correlate with success. However, these qualities aren't mandatory - some succeed without them. For example, we attended a talk with Jesse Eisenberg, an actor, writer, and director. He wrote and starred in a film about cousins retracing their grandmother's life during the Holocaust alongside Kieran Culkin. In the movie, his character has OCD, which mirrors Eisenberg's experiences. He used rubber bands around his wrist, snapping them to stay grounded in the film and real life. He was candid about the challenges of making that film compared to others in which he was simply a hired actor. It became clear that a creative individual who loves making art, working hard, and focusing on the craft rather than seeking widespread recognition. Jesse Eisenberg, for example, seems to enjoy making films more than embracing the perks of being a movie star. He mentioned that being a star makes it easier to get projects funded. He can secure financing more effectively by attaching his name to a screenplay. However, he doesn't seem drawn to stardom's glamour or hedonistic aspects. For him, fame is a tool to achieve creative goals rather than an indulgence.

Section 6: Charisma and Social Skills in Success

Jacobsen: Do charisma and schmoozing play a significant role in success, or can performers manage without them?

Rosner: It certainly helps, but it's not essential. George Clooney, for instance, is naturally charming and charismatic, whether he intends to be or not. I once worked as a doorman at the Sagebrush Cantina. One of my duties was to ensure no one parked in a specific space out front. It looked like a handicapped spot but was reserved for the fire marshal if he needed to check occupancy limits. If we exceeded those limits, the fire marshal could shut us down or start visiting regularly, which would have been bad for business. One day, a car full of older adults parked in that spot. An older man, probably in his late 70s, got out with his wife, who was walking with a cane. I approached them to explain that they couldn't park there. My job required me to be firm, even unpleasant, if necessary. However, as the man spoke to me, he exuded a charming, twinkling charisma. He pleaded politely, explaining his wife's difficulty walking. Against my better judgment, I let them park there. Afterward, I questioned myself, wondering why I had caved so easily. I couldn't figure out if the man were deliberately persuasive or if it was just his natural demeanour. Later, I realized it was Lloyd Bridges. His charm was undeniable, whether intentional or not. Even in his old age, Lloyd Bridges remained a charming and charismatic figure. As the father of Jeff Bridges and a star in his own right, his charisma was undeniable. It's not a physical force like in physics but a real interpersonal force that can influence people profoundly. This reminds me of seeing actors like Sam Elliott, who is now likely the same age Lloyd Bridges was when I met him. In his late seventies, Sam Elliott remains a familiar and charismatic figure. If you Google "Sam Elliott and wife," you'll see this iconic actor, who has been in movies for over 55 years, married to a petite, older woman. It's striking because we associate stars with immense social leverage. Yet, many remain in long-term relationships with partners who seem like "regular" people.

Jacobsen: Why do you think that contrast feels unusual?

Rosner: It seems odd because we expect celebrities to maximize their social capital in all aspects of life. However, many have long-term partners who've been with them through the highs and lows of their careers. They're human beings first and love their partners for reasons beyond surface appearances or public perception. I used to work out at Gold's Gym in North Hollywood, where I met Albert Beckles, a legendary bodybuilder. Beckles, who might now be in his mid-80s or older, was incredibly fit. Even in his seventies, he maintained a physique with around four percent body fat. Despite his age, he looked youthful, with a shaved head and a ripped body. Occasionally, I'd see his wife or girlfriend, a petite older white woman, and their pairing seemed unusual at first glance. With his youthful appearance and powerful presence, Beckles contrasted starkly with his partner, who looked her age. However, their relationship likely spanned decades—they probably met when they were younger and grew old together. She naturally aged while he maintained a youthful appearance due to his lifestyle. It highlights how their bond was built on something deeper than appearances.

<u>Section 7: Balancing Public and Private Personas</u>

Jacobsen: Do you think celebrities have an innate duality—a personal identity and a public persona - that helps them succeed?

Rosner: Absolutely. Celebrities who reach the highest levels of fame often balance two distinct identities: their authentic selves and their celebrity personas. The way they manage this dynamic varies greatly. Some embrace their celebrity status fully, using it to fuel their careers. In contrast, others prioritize maintaining their identity and relationships. Success often depends on how well they can navigate these two facets of their lives. These days, most celebrities manage their public lives well. We're no longer in the age of "celebrity assholes," which was more prevalent in the 1970s. For instance, when I was on the writing staff of a major show, the culture wasn't about excess or indulgence. Instead of doing cocaine, we were taking fibre gummies to deal with the sedentary lifestyle of long hours at our desks. This era has more celebrities who behave responsibly and navigate fame with maturity. I watched my former boss evolve from being largely a radio personality to one of America's 100–150 most famous people. Despite this rise in fame, he didn't lose his decency.

Jacobsen: How did he manage the pressures of fame while staying grounded?

Rosner: He didn't engage in exploitative behaviour or use his position to harm others. He remained charitable and reasonable, though he enjoyed playful banter and asking awkward questions as part of his natural curiosity. His increased agency and responsibilities came with new challenges - paying for a publicist, manager, and agent and managing media interactions carefully. However, he became less cautious in expressing his views during the Trump era. As a decent person, he felt compelled to speak out about alarming events in America. For example, he was deeply upset by the 2017 Las Vegas shooting, where over 50 people were killed and more than 500 were injured. As a Las Vegas native, this tragedy hit close to home. Traditionally, late-night hosts avoided political commentary to maintain a broad audience. But my boss, like others, felt he had to address critical issues, even at the risk of alienating some viewers.

Jacobsen: Do you think this shift reflects a broader change in celebrity culture?

Rosner: Yes. We're in an era where most celebrities manage their public personas carefully and behave with greater responsibility. Of course, no one is perfect, and every celebrity has moments of controversy. Still, the overall trend is toward more mindful and ethical behaviour. Celebrities, like anyone else, can occasionally be caught acting poorly. However, we are in an era where they are generally more responsible. This may be because the public is better informed, as a lack of information often leads to poor decisions. In the 1970s, I was certainly immature, as were many celebrities at the time.

<u>Section 8: Success Beyond Social Competence</u>

Jacobsen: What about people in Hollywood who aren't socially competent? Can they still succeed?

Rosner: Yes, it's possible. I'm not particularly socially competent, but I managed to build a career. Part of my success was due to a writing partnership with someone who excelled socially—what I'd call "reverse autism." He handled the social dynamics, which was helpful, even if it wasn't always easy. Additionally, you can succeed without social prowess if you're good at what you do. I worked hard and developed skills that compensated for my shortcomings. For example, I became comfortable admitting personal flaws and turning them into humour, similar to what stand-up comedians do. If my jokes didn't land, I could still make people laugh by being candid about embarrassing topics. Many talented individuals in entertainment, some on the spectrum or socially unconventional, succeed because of their competence, creativity, and hard work.

Jacobsen: What about people at the lower levels of entertainment, like production assistants or interns?

Rosner: At the entry-level, I've noticed a mix of talent and incompetence. Many interns or PAs I encountered early in my career were hired through connections rather than merit. Some were unreliable or lacked dedication. This often allowed competent and hardworking individuals—even unconventional—to stand out and advance. Over time, the less capable individuals tend to be weeded out. In the early stages, though, it's possible to succeed as a "weirdo" if you're reliable, competent, hardworking, or possess a couple of those qualities.

Jacobsen: What if someone is found to be unethical or fraudulent?

Rosner: I've been fortunate to work with mostly ethical people. While dishonesty exists in any industry, I've rarely encountered it directly. Ethical behaviour tends to matter more as people advance, where reputations carry greater weight.

Jacobsen: Thank you again for the time, Rick.

Discussion

The interview between Scott Douglas Jacobsen and Rick Rosner offers insightful perspectives on the evolving landscape of celebrity culture. Rosner highlights a significant shift from the reckless behavior of the 1970s to the more responsible and ethically conscious conduct of today's celebrities. This transformation is attributed to increased public accountability and the pervasive influence of social media, which hold public figures to higher standards. A central theme is the strategic use of fame as a tool for creative and social endeavors rather than personal indulgence. Rosner emphasizes that successful celebrities balance their public personas with their authentic selves, fostering relatability and long-term admiration. Authenticity and ethical behavior emerge as crucial factors for sustaining public trust and mitigating controversies, aligning with the broader societal demand for integrity in public figures. The role of charisma and social skills is discussed as beneficial but not essential for success in the entertainment industry. Rosner argues that talent, hard work, and authenticity are equally important, allowing individuals to thrive even without exceptional social prowess. This is exemplified through anecdotes about charismatic figures like Lloyd Bridges and Sam Elliott, illustrating how genuine personal qualities can enhance public appeal. Celebrity activism is another key topic, with Rosner commending figures like Leonardo DiCaprio and George Clooney for their commitment to environmental and political causes. However, he also notes the scrutiny they face to ensure their actions align with their advocacies, highlighting the complexities of public advocacy. Overall, the interview underscores the importance of balancing public image with personal integrity, leveraging fame for meaningful purposes, and adapting to the changing expectations of audiences. Rosner's insights provide a comprehensive understanding of the factors that contribute to sustained success and public admiration in the modern entertainment industry.

Methods

The interview was conducted by Scott Douglas Jacobsen, with Rick Rosner who is known for his work on shows like *Jimmy Kimmel Live!* and *The Man Show*. The methodology employed for this interview was a semi-structured format, allowing for a flexible yet focused conversation that could delve deeply into relevant topics while accommodating spontaneous insights.

'The Room

I think all this is somewhere in myself
The cold room unlit before dawn
Containing a stillness such as attends death
And from a corner the sounds of a small bird trying
From time to time to fly a few beats in the dark
You would say it was dying it is immortal.'

-W.S. Merwin