

# Can We Learn to Invest in the Future? | Meditations on Passion, Randomness and Optionality with Josh Wolfe

March 20, 2018

*If an idea is really good, you need to shove it down people's throats. You don't need to worry about them stealing it. - Josh Wolfe*

## INTRODUCTION

**What's up everybody?** Welcome to this week's episode of Hidden Forces with me, Demetri Kofinas. Today, I speak with Josh Wolfe co-founder of Lux Capital, a venture firm that specializes in the hard sciences, supporting scientists and entrepreneurs who pursue counter-conventional solutions to the most vexing puzzles of our time. Josh is also a founding investor and board member with Bill Gates in Kymeta, which makes cutting-edge antennas for high-speed global satellite and space communications. He is a Westinghouse semi-finalist and published scientist. He previously worked in investment banking at Salomon Smith Barney and in capital markets at Merrill Lynch and in 2008 co-founded and funded Kurion, a contrarian bet in the unlikely business of using advanced robotics and state-of-the-art engineering and chemistry to clean up nuclear waste. Josh is also a columnist with Forbes who has lectured at MIT, Harvard, Yale, Cornell, Columbia, NYU and been invited to The White House and Capitol Hill to advise on nanotechnology and emerging technologies. Josh, welcome to Hidden Forces.

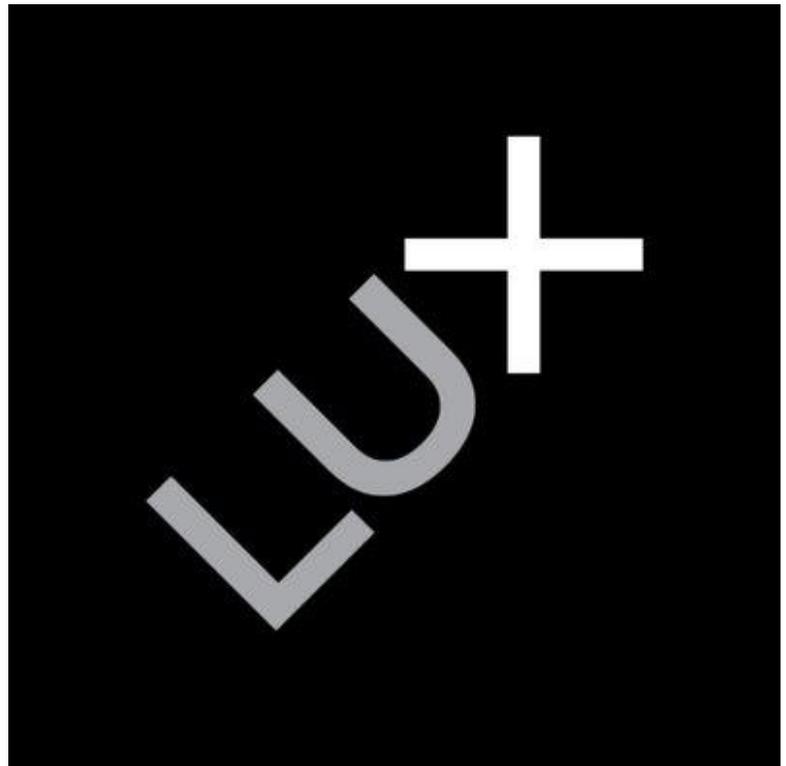
## WHY DO I CARE?

It is rare to find someone who has an appreciation and love for science and technology, but who is also in a position to actively invest in technologies that leverage the cutting edge innovations happening in the hard sciences. This is something that I want to do more of for my own portfolio, and it's something that I want to introduce my audience to. I would like my listeners to come away from this conversations with a deeper appreciation for cutting edge science and how they can look for high-convexity plays by betting on the forces of innovation dominating the hard sciences.

*You can't connect the dots looking forward; you can only connect them looking backwards. So you have to trust that the dots will somehow connect in your future. You have to trust in something - your gut, destiny, life, karma, whatever. This approach has never let me down, and it has made all the difference in my life. - Steve Jobs*

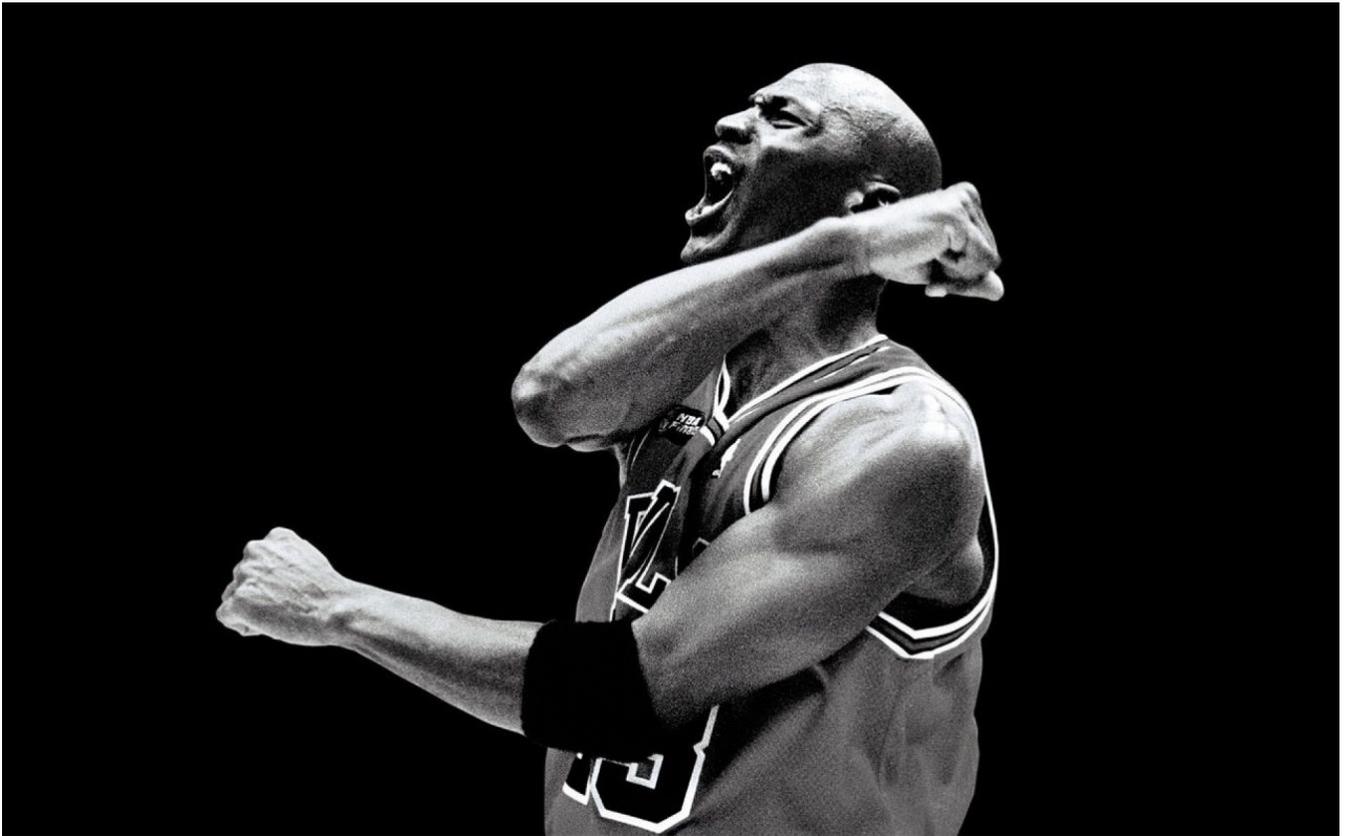
### **INDUSTRIES**

- 3D Imaging & Printing
- Advanced Manufacturing
- AI & Machine Learning
- Biotechnology
- Computer Vision
- Computing & Infrastructure
- Connected Devices
- Digital Health
- Energy Technology
- Hardware
- Nanotechnology
- Advanced Materials
- Neuroscience
- Open Science
- Robotics & Drones
- Space
- VR & AR



## INVESTMENT FRAMEWORK

1. **Background** — Where did you grow up? How did you become an investor? What was that process for you? What in your background and in your make-up do you believe accounts for who you are today?
2. **Lux Capital** — When did you start Lux Capital? What was that process, and how did you go about raising money? Did that happen organically over time?
3. **Investment Thesis** — Walk me through your investment thesis? What is “investing” in your estimation? How do you see yourself and your investment thesis relative to your competitors? You have this thing you call “100-0-100.” I’ve heard you say, “I am one hundred percent certain that Lux will be investing in the cutting edge sciences and technologies that will shape the future. I have ZERO idea what they will be. But I am nearly one hundred percent certain where we will find them.”
4. **Randomness & Optionality** — I’ve heard you talk about “randomness and optionality” as conditions that you seek to promote in your life and in your approach to investing. Can you elaborate on this?
5. **Predictors of Success** — When you invest in a venture, how do you go about evaluating its merits? How do you evaluate its people? I’ve heard you say that “passion is the best predictor of success,” which I love. Passion has become a buzzword, so can you tell me what passion means to you? What are some great examples of passionate people and what do you think makes their passion so compelling? (Steve Jobs, Michael Jordan, Martin Luther King, etc.)



## THE UNDISCOVERED COUNTRY

6. **Predicting the Future** — I’ve always found that serendipitous events (fortuitous investment opportunities) come from analogue states of flow. I have never been able to turn my predictive abilities “on or off” so to speak. There is an ongoing engagement with the source of inspiration about where the next big breakthrough will come from and how to find it. How do you experience successful insight and what does this process feel like for you? Is it a process? How do you cultivate it?

7. **Geeking Out** — How much time do you spend doing unstructured thinking, reading, listening, etc.? I often experience the processes mentioned earlier as cyclical. I am drawn towards some large field, interesting technology, or intriguing phenomenon (complexity science, quantum computing, falling birth rates in Japan, preponderance of nostalgia in movies, etc.) and indulge myself fully in the process of learning about it. If it is truly engaging, I bath in it on and off over the course of weeks and months before a breakthrough occurs. That process involves reading books, watching documentaries, listening to podcasts, engaging in relevant artwork around the topic, and geeking out with people (mostly on the phone) about it. I work the subject over and over and over again in my mind until the clay turns into something that resembles a concrete idea that I can either share or upon which I can execute. This is a very fulfilling process. I wonder how you do this, and what it feels like for you?
8. **Art** — Does art play a role in your life? If so, what type? (film, music, theatre, etc.) How does your engagement with art inform or mold or amplify your investing? Do you have any favorite movies, music, or artwork that express some truth about who you are and how you see the world?
9. **Hard Science** — Talk to me about the most interesting categories in the hard sciences that you are focused on. What got you interested in these?
10. **Materialism** — You have said you are an atheist. Do you wonder what the nature of the world is beyond your own experience? Do you believe that you can know things about the world as it is using the scientific method, or is empirical knowledge simply the refining of our model of the world? What do you think happens when we die?
11. **Role Models** — Who are some of the most important role models in your life? Who do you admire? Have you had a chance to be a role model or mentor for someone else? What was/is that like for you?
12. **What Matters** — What matters most to you? What do you care more about than anything else in the world? Are there principles you live by that define you and without which you would be lost?
13. **Santa Fe Institute** — I had a chance to stay at SFI this past summer, and it was one of the most delightful and gratifying experiences I've had in a long time. How did your relationship with SFI come about?
14. **Slime Mold** — Your slime mold analogy (food/energy scarcity leads to congregation of cells) reflects a thesis put forward by our guest Geoffrey West regarding scale in physical systems. A collection of cells as a single organism are more efficient than each cell acting on its own. How does this lesson inform your own investing?
15. **Short-Side** — I've heard you talk about taking short positions as well. In your "slime mold" article, you talked about sampling investors and asking them how much time we have left in this latest cycle. You said that when the number gets to 80% of respondents saying "two years," that we will have reached the end. Where do you think we are in the cycle? (I liked your "expectation of other people's expectations")
16. **Global Macro** — What are your views on the global macro environment? What was your experience during the 2008 crisis? How do you feel the "clean-up" of that crisis has impacted the nature of this recovery?

