Early-Career Spotlight

APS Division of Statistical & Nonlinear Physics

DSNP

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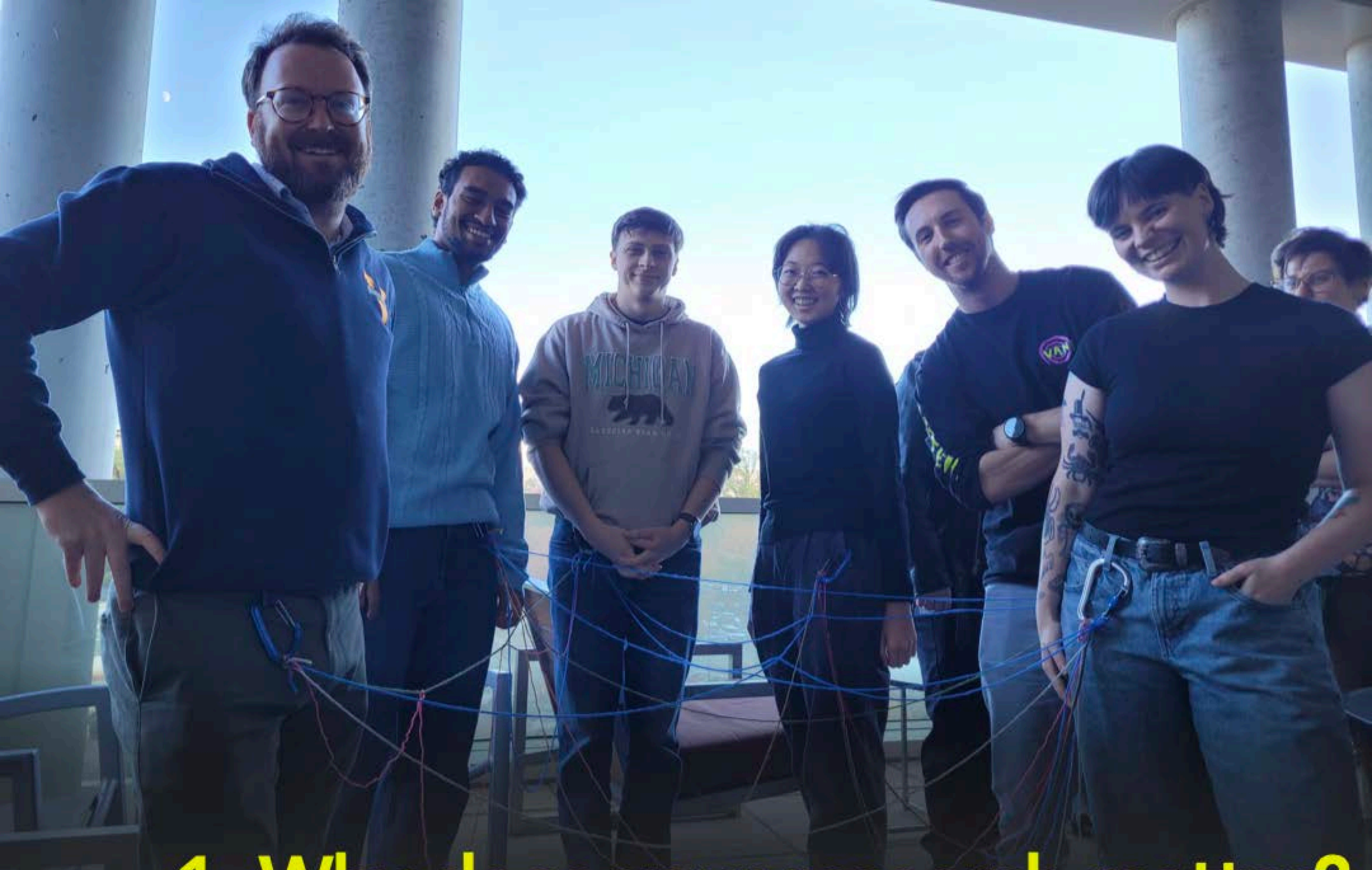
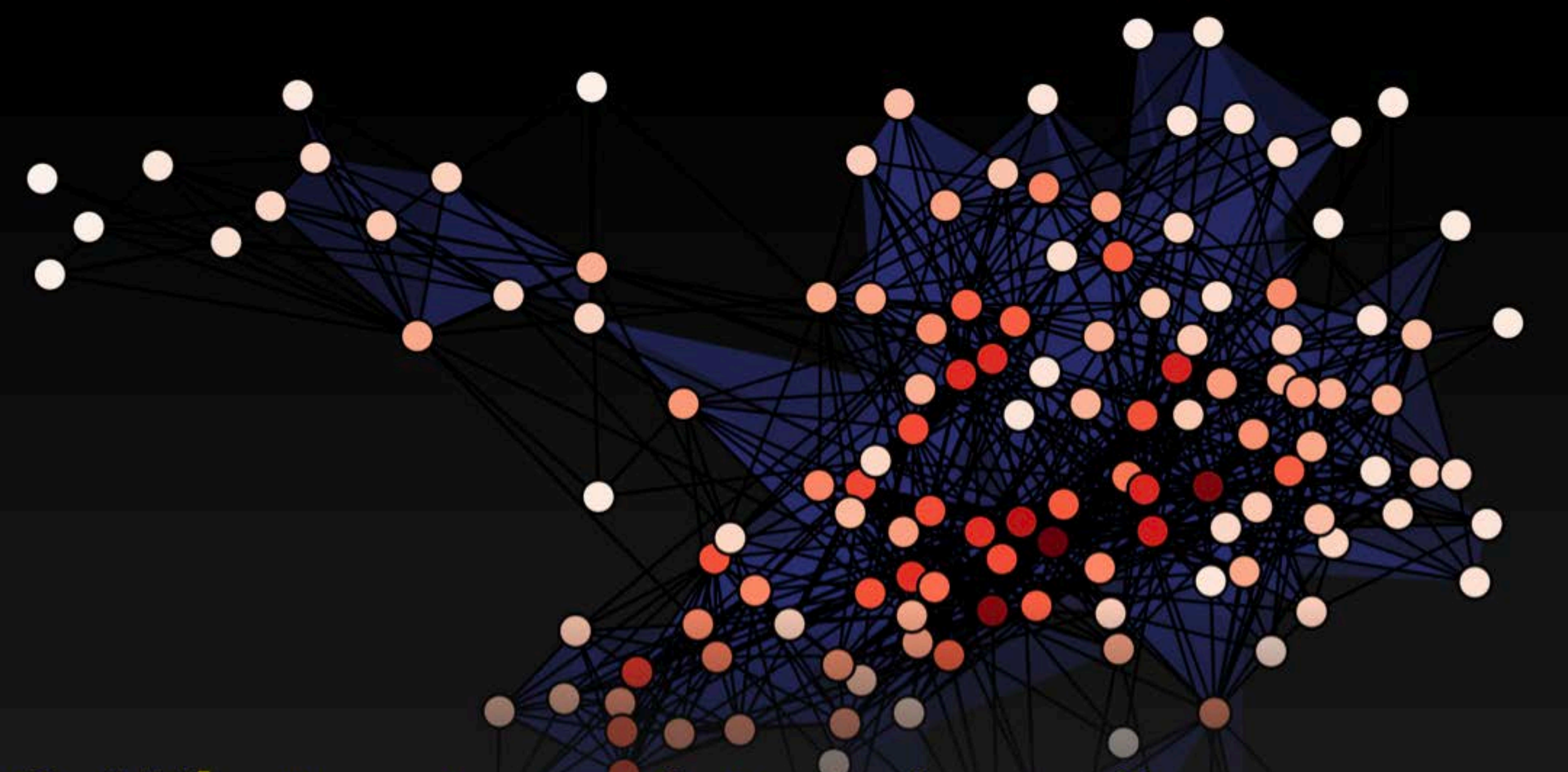


1. Why does your research matter?

My research studies the spread of diseases, information, and ideology on complex networks. I'm particularly interested in the effect that groups—not just pairwise interactions—have on the spread of these phenomena. Mitigating the spread of diseases and mis/disinformation improves safety and quality of life. Understanding the mechanisms and contexts in which these phenomena spread can provide specific methods to *intervene in scenarios where groups shape contagion*.



2. What got you into science?

As a kid, I drove my parents crazy by asking "why" all the time and this curiosity has been a consistent theme in my life.

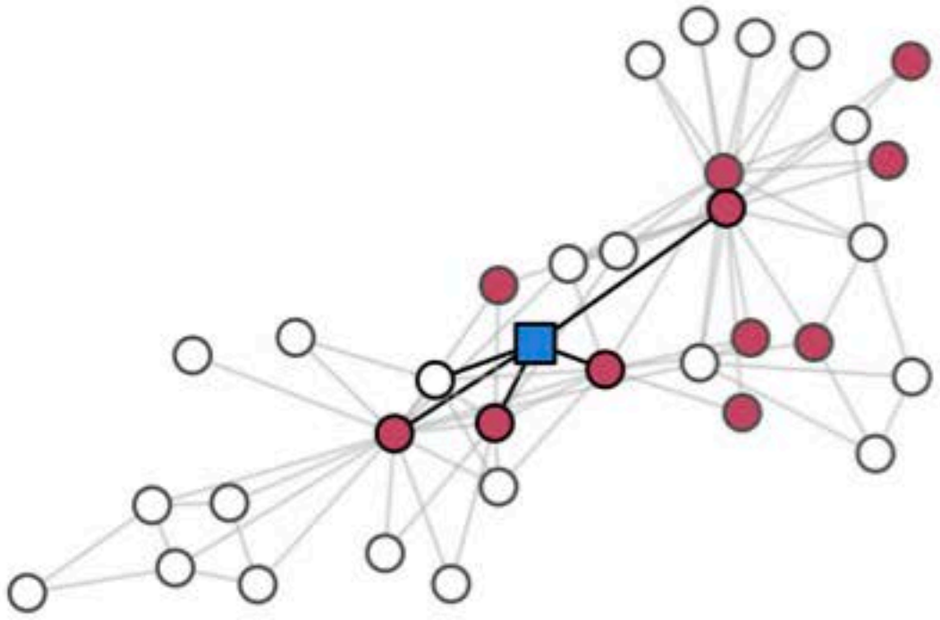
I did my undergraduate degree in Mechanical Engineering and fell in love with research through several summer fellowships. After finishing my undergrad, *I worked in manufacturing for roughly three years and realized that I missed asking "why"*.

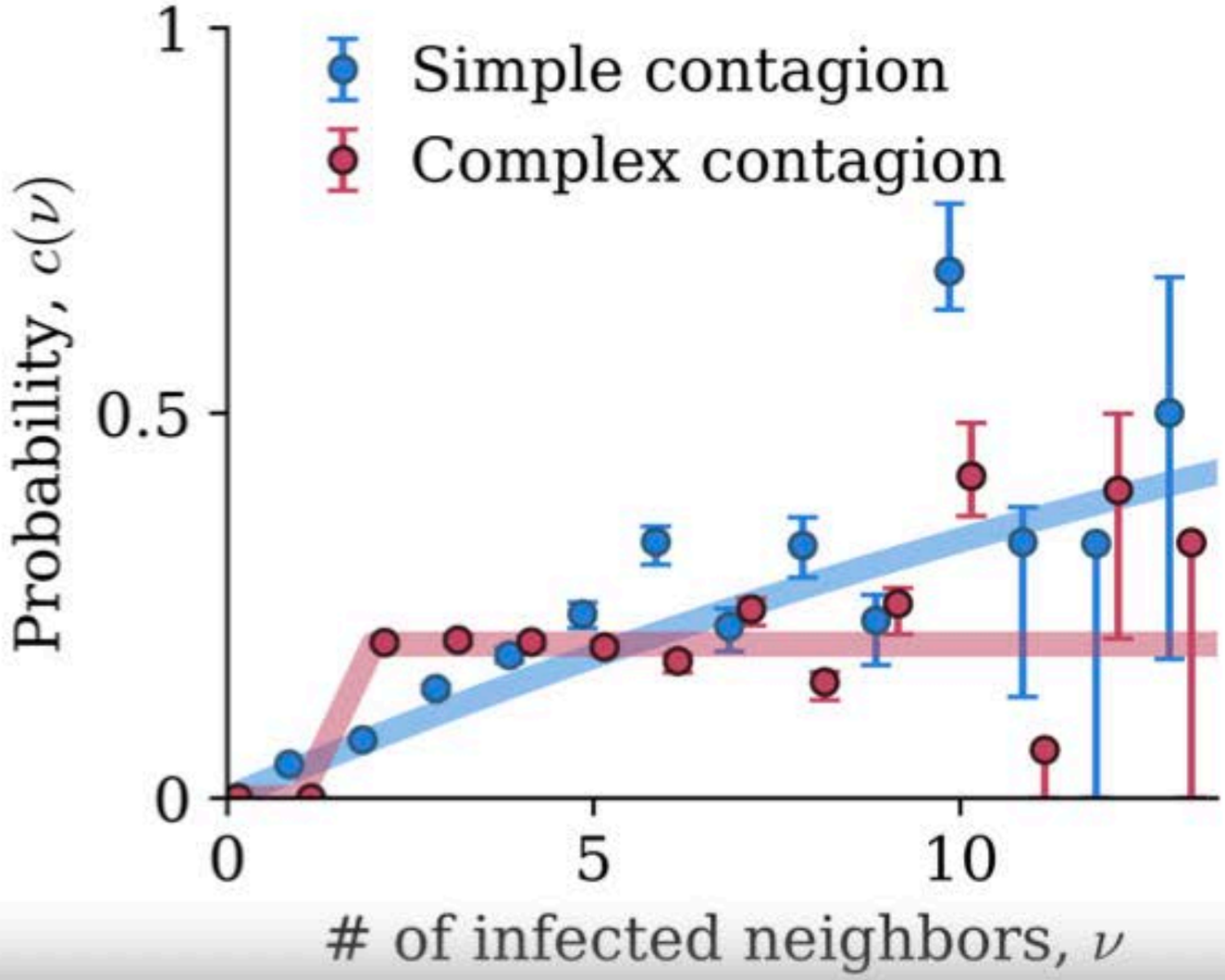
When I started searching for jobs that I *did* want, they all required a PhD. I had loosely thought about having a career in academia, but it wasn't until I tried out industry that I realized that any job I wanted in the future needed to include some element of research.

3. How did you end up here?

In my undergrad, *I resonated most with the computational aspect of research* and pictured working on fluid dynamics, so I started studying atmospheric science through the lens of geophysical fluid dynamics.

After working with several advisors, *I realized that this wasn't a good fit, so I chatted with roughly 15 PIs* across many different areas and finally found my advisor, Juan G. Restrepo. He introduced me to dynamics on networks, something I still work on to this day.



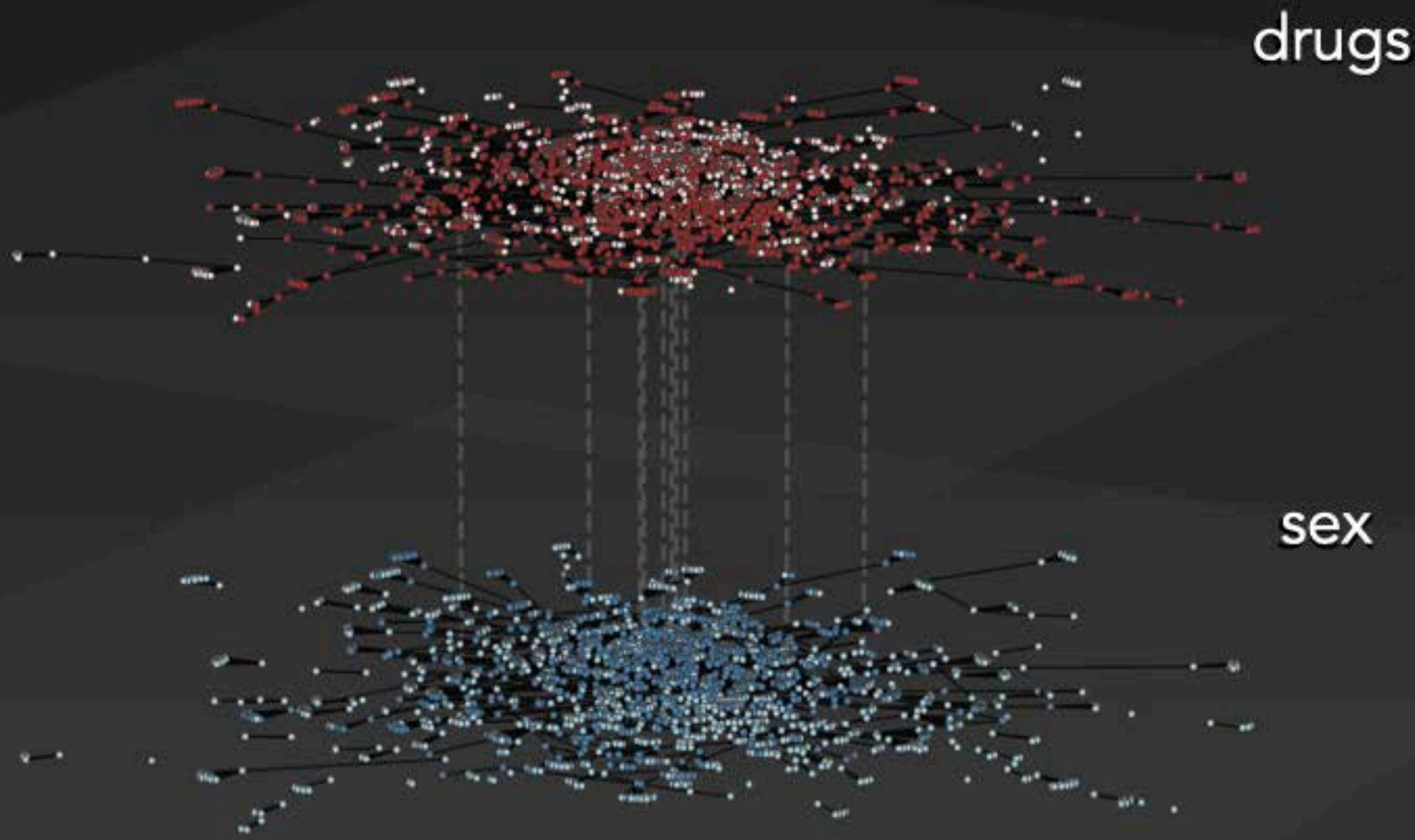


4. What's one thing you wish someone had told you before starting out?

I wish someone had told me how important it is to choose a good advisor. In graduate school, I worked with two difficult advisors, and I often felt as their opinion of me determined whether I was a "good scientist" or not. Very few people were aware of what was going on, and I couldn't tell whether what I was experiencing was normal. *I encourage students and postdocs to carefully choose their advisors*. Chat with current and former lab members and weigh their experiences. The process is often framed as a test for the student to prove themselves, but in reality, both students and advisors need to make sure if it is a good fit.

5. Is there a mentor that really inspired you to pursue an academic career?

My advisor, Juan G. Restrepo, was possibly the strongest influence in my decision to become an academic. He showed me how to have fun doing science and frame interesting questions. *He always had the attitude of "why not?" and got excited about questions inspired by everyday life*. One of my favorite memories of him was when, after watching his son play dodgeball in school, he spent an entire class developing a mathematical model of dodgeball (now published in Phys. Rev. E!).



6. Now that you're mentoring others, what's something you try to pass on?

I wish that someone had dispelled the myth of genius earlier. My time at the University of Vermont taught me to do research in a collaborative way, where *there's not one single expert, but rather a group of talented people, each with different expertise*.

I feel privileged to run an interdisciplinary lab of talented people. The myth that I, as a PI, need to have all of the answers or have the perfect research vision collides with the reality that I don't have all the answers. I've found that being honest when I'm confused and brainstorming with my mentees has helped create a healthy research environment.

7. What's something in your work that you're really excited about?

Network science has transformed the way we think about many complex systems in our world, such as disease transmission, gene regulation, neuroscience and social media, to mention a few. Extending these insights to groups is extremely exciting and I think that *uncovering how contagion spreads across scales of interaction is one of the directions I'm most excited about*.