My teaching philosophies are guided by three core principles: **Transparent Evidence-based Teaching**, **Active Inclusivity**, and **Reflective Mentorship**. These values, shaped by research and my own experiences with exceptional teachers and mentors throughout my career, focus on preparing students for both being *a rigorous scholar* and *a whole person*. In creating empathetic and active learning spaces, I aim to empower students to excel both in their studies and in the broader challenges they will face in life.

Teaching

Experience My teaching experiences at the University of Chicago have taught me how to effectively instruct and engage students. As a Teaching Assistant for *Mobile Computing* (CS23400, ~40 students), I regularly held office hours to support their learning, addressing both technical and conceptual questions. I guided students through interactive projects, including one where they used WiFi and AI algorithms to triangulate virtual flags. In *Introduction to Computer Systems* (CS15400, ~150 students), I applied a similar hands-on approach, leading students through a project on cache optimization. This experiential work proved especially valuable during COVID-19, fostering a supportive environment and encouraging deeper engagement despite remote learning constraints.

Additionally, as an instructor in the Data Science Clinic, I led a collaborative project with Verizon, where master's students developed strategies to manage exogenous shocks in data systems. I created notes and interactive Python notebooks with separate teacher and student versions, which balanced independent exploration with structured guidance. This setup enabled me to handle a wide range of questions—from practical to theoretical—while keeping students from diverse backgrounds actively engaged. My teaching effectiveness has been demonstrated through teaching evaluation comments from students.

> **Comments From Teaching Evaluation**
>
> *"Shinan was immensely helpful for project 3. He would go into individual breakout rooms with students to go over their code, and was able to quickly identify errors or issues in thinking, and help explain why it went wrong, and point me in a productive direction. He significantly contributed to my learning of cache structure and function this quarter."*
> *"The TA was in charge of specific projects or general homework and was very responsive and helpful without giving away too much. He did a great job leading students to understanding."*
> *"Shinan stimulated my interest in the core ideas of the class and challenged me to learn."*

Philosophy I believe that teaching is an art of giving. At the core of my teaching philosophy is a commitment to evidence-based, inclusive practices that foster deep, active learning.

Transparent Evidence-based Teaching. Effective learning, particularly in STEM, requires students to actively apply and reflect on concepts. Research [1] shows that active learning leads to better outcomes compared to passive instruction. One challenge with active learning is that students often feel they are learning less than in passive lecture settings, likely due to the increased mental effort required [2]. To mitigate this, I provide insights into the benefits of maintaining open dialogue to provide concrete evidence. In Introduction to Computer Systems, I used think-pair-share, in-class polling, and hands-on coding projects, such as cache optimization, to engage students directly. I used more evidence and examples throughout the process to reinforce key concepts effectively. This experiential approach helped students understand not only how systems work but why optimizations are important. By being transparent about my methods, I encouraged students to embrace challenges and gain confidence in problem-solving.

Active Inclusivity. Creating an inclusive learning environment is essential, especially in STEM settings with students from diverse backgrounds. Inclusive practices help bridge performance gaps, particularly for underrepresented groups in STEM [3]. In Introduction to Computer Systems, I used varied engagement techniques—like interactive lectures and flexible assessments—to support all students. During my time in the Data Science Clinic, where students come with a wide range of experiences, I offered individualized support and collaborative projects with Verizon to foster confidence and encourage active participation. Inclusivity requires consistent effort in course design and feedback responsiveness, building a space for students to take intellectual risks.

Courses I Can Teach My background in network systems and data-driven approaches positions me well to teach a variety of courses in computer science and electrical computer engineering. At the undergraduate level, I can offer instruction in courses such as Introductory Data Science, Computer Security, Computer Networking, and Introduction to Computer Systems. For more advanced students, I would enjoy teaching courses on Advanced Network Security, Advanced Computer Networking. I am particularly excited to design a new course called Practical Machine Learning Systems that integrates interdisciplinary research with hands-on learning, focusing on real-world applications of ML techniques to enhance system performance and security.

Mentorship

Experience Mentorship has been one of the most enriching aspects of my academic career. During my Ph.D., I have had the privilege of mentoring five Ph.D. students and four Master's students from diverse backgrounds, each bringing unique perspectives shaped by different nationalities, experiences, and personal identities. Guiding students as they grow into independent researchers and professionals is both a responsibility and a joy that I take seriously.

At the University of Chicago, I was fortunate to work with talented individuals such as Xi (Chase) Jiang, whom I guided through the development of idealization, experimental methods, and conceptual frameworks [4, 5]. Additionally, I supported Weisi Yang from his undergraduate studies at UESTC through his Ph.D. application process, which ultimately led him to Northwestern University with Professor Stephen Xia. Similarly, I mentored Rameen Mahmood, a Ph.D. student at NYU working with Dr. Danny Huang, and Ragini Gupta, a Ph.D. candidate at UIUC under Professor Klara Nahrstedt, who collaborates with me on challenges in network intrusion detection. Working with students like Jeewon Chae, who completed his MS at UChicago and now thrives as an SDE at Meta, reaffirms my belief in fostering curiosity and independence, allowing mentees to develop their own research perspectives.

Philosophy My mentoring philosophy balances guidance with independence—encouraging mentees to explore their own ideas while providing structured feedback. Weekly meetings help track progress and set goals, creating an environment where mentees feel supported tackling challenging problems.

Reflective mentorship is at the core of my approach. It involves continuously improving my mentoring style, focusing on empathy, adaptability, and ethical awareness. I empower my mentees to think critically about their work and its societal impact. *Mutual respect* is the foundation of a healthy mentor-mentee relationship. I value my mentees' perspectives and encourage them to express ideas freely. This openness builds trust, which is essential for productive collaboration. Respecting each mentee's learning pace ensures they feel valued and understood. Research is inherently *collaborative*. I encourage mentees to participate in discussions, share ideas, and work together on complex problems. This fosters a supportive community where mentees learn from each other and build essential interpersonal skills for their future careers. Instilling a sense of *responsibility* is key. Mentees must recognize the societal impacts of their work, especially in areas like network security. I guide my mentees to consider these implications and make ethical research choices.

Practice To implement these principles, I hold regular one-on-one meetings, encourage group collaborations, and provide constructive feedback that emphasizes both technical skills and personal growth. My goal is to ensure that mentees not only succeed academically but also develop into well-rounded, socially responsible researchers. I also support students in setting personal goals and maintaining a healthy work-life balance, which I believe is critical for their long-term success and well-being.

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