



Graduate Research Assistantship in Complex Systems Engineering and Design Research at Colorado State University

One to two graduate assistant positions are available in Dr. Yinshuang Xiao's research group in the Department of System Engineering at Colorado State University starting from Spring 2026 or Fall 2026. Highly qualified and motivated students who have research interests in complex systems engineering, network science, and data-driven design research are strongly encouraged to contact Dr. Xiao at Yinshuang.Xiao@colostate.edu with the title "GRA Application to Cosine Lab." Please attach your CV, a copy of your transcripts, and a brief description of your research interests and experiences.

General Scope

The **CO**mplex **S**ystems, **I**nformatics, and **N**etworked **E**ngineering (COSINE) Laboratory (<https://cosine-lab.github.io/cosinelab.org/>) conducts interdisciplinary research at the intersection of systems science, network science, and data-driven engineering design. Our work is centered on understanding and designing **complex socio-technical systems**, with a strong emphasis on **human-system integration**, **human-AI collaboration**, and **engineering for dynamic, interconnected environments**. Research in the COSINE Lab spans a range of application domains, including transportation systems, product and market systems, electric vehicle (EV) charging infrastructure, urban infrastructure, energy systems, and smart manufacturing. Key research themes include:

- **Local-level network-based** bottom-up design of complex systems
- Engineering and design of complex systems with **temporal dynamics**
- **AI-integrated** system design for adaptive and responsive solutions
- **Multidimensional** network modeling across interdependent systems

Ph.D. students in the lab will have the opportunity to contribute to these proposed topics and also work closely with Dr. Yinshuang Xiao to explore and develop new, innovative research directions aligned with their interests.

Requirements and preferred qualifications

- Hold a B.S. or an M.S. degree in Engineering or related areas with a minimum GPA of 3.0/4.0.
- A minimum of 80 on TOEFL or a minimum of 6.5 on IELTS is required for international students.
- GRE is optional for all applicants.

Candidates with the following qualifications are preferred.

- Familiar with programming in Python, MATLAB, R, and/or C++.
- Fluency in at least one Machine Learning framework, such as PyTorch, Tensorflow, JAX, etc.
- Excellent communication skills, both oral and written.
- Experience with team collaboration as well as independent work.

About the Department of System Engineering

The Department of System Engineering (<https://www.engr.colostate.edu/se/>) at Colorado State University is a dynamic and rapidly growing academic unit focused on advancing interdisciplinary solutions to the most difficult technical, economic, environmental, and social challenges. Faculty members collaborate closely with industry and government partners to pioneer cutting-edge research in aerospace, energy, civil infrastructure, and social systems engineering, fostering expertise in the design and optimization of complex systems. Students in the department are at the heart of the mission, engaging in high-impact research that integrates technical, organizational, and human factors. This prepares them to become leaders in academia, industry, and government. The department fosters a supportive, collaborative environment with an emphasis on strong theoretical foundations, practical application, and interdisciplinary learning.

About Colorado State University and Fort Collins

Colorado State University (CSU) (<https://www.colostate.edu/>) is one of the nation's top public research universities, known for its commitment to excellence in education, research, and community engagement. With a strong emphasis on innovation, interdisciplinary collaboration, and global impact, CSU offers world-class resources and facilities to support student success.

Located in Fort Collins, Colorado (<https://www.fcgov.com/>), CSU provides an exceptional quality of life. Fort Collins consistently ranks among the best places to live in the United States, known for its vibrant downtown, thriving tech and innovation sectors, outdoor recreation opportunities, and welcoming community. Nestled at the foothills of the Rocky Mountains, Fort Collins offers a perfect balance of natural beauty, cultural activities, and a strong entrepreneurial spirit.

