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NILE Research Lab @ Oakland University

(Department of Computer Science and Engineering)

1 Lab Overview

We develop trustworthy artificial intelligence systems that operate reliably in privacy-sensitive, wireless, and cyber-physical environments. **Our research bridges** AI, cybersecurity, wireless communications, information theory, graph learning, and distributed machine learning, with a strong emphasis on rigorous theoretical foundations and practical system design.

2 Research Directions

A major challenge in modern AI systems is simultaneously achieving robustness, privacy, efficiency, transparency, and scalability. The NILE Research Lab focuses on:

- Trustworthy Artificial Intelligence
- AI for Cybersecurity and Privacy
- Differential Privacy and Privacy-Preserving Learning
- Wireless AI, Edge Intelligence, and NextG Networks
- Graph Machine Learning and Network Analytics
- Semantic Communications and Foundation Models
- Cyber-Physical Systems and Intelligent Sensing

3 Recruiting

We are recruiting Ph.D. students, visiting scholars, self-funded students, and undergraduate researchers interested in AI, cybersecurity, wireless systems, trustworthy AI, and edge intelligence. Positions are available for Fall 2026 and Spring 2027 at OU. Interested candidates should send a CV to: mseif@princeton.edu

Key Responsibilities

- Conduct cutting-edge research and publish at leading venues.
- Develop AI systems, algorithms, and software prototypes.
- Collaborate with academia and industry.

Preferred Background

- Computer Science, Electrical Engineering, Applied Mathematics, or related fields.
- Machine learning, optimization, networking, cybersecurity, or wireless communications.
- Python, PyTorch, TensorFlow, or similar frameworks.

Why Oakland University?

Located in the heart of Southeast Michigan, Oakland University offers a unique environment where cutting-edge research meets one of the world's largest ecosystems for **automotive engineering, mobility, advanced manufacturing, and intelligent systems**. The university's proximity to leading industry partners provides outstanding opportunities for impactful collaborations in AI, cybersecurity, connected vehicles, robotics, and next-generation cyber-physical systems.

Oakland University's Department of Computer Science and Engineering is one of the university's largest and fastest-growing departments, with nationally recognized strengths in **Artificial Intelligence, Cybersecurity, Data Science, and Computer Science**. The department is designated by the **National Security Agency** as a **National Center of Academic Excellence in Cybersecurity and Cyber Research**, reflecting its commitment to high-impact research and education. The department is also **ranked among the world's top computer science departments according to CSRankings**, a research-based ranking of faculty publications at premier computer science venues.

As Oakland University continues to expand its research enterprise and advance its AI initiatives, students joining the **NILE Research Lab** will have the opportunity to contribute to foundational advances in trustworthy AI while collaborating with leading academic and industry partners to shape the future of intelligent networked systems.