

Faculty name: Nok Wongpiromsarn

Name of the lab: Autonomous Systems Lab

Area of research: Autonomous Systems

Current research interests:

- Correctness of learning-enabled autonomous systems
- Interaction between autonomous and human-operated systems

Research directions willing to pursue (in future):

- Synergy between machine-learning-based and model-based design and analysis in autonomy

Conference targeted for Publication:

Robotics

- IEEE International Conference on Robotics and Automation (ICRA)
- IEEE/RSJ International Conference on Intelligent Robots and Systems (IROS)
- Robotics: Science and Systems (RSS)

Controls/Cyber-physical systems

- ACM/IEEE International Conference on Cyber-Physical Systems (ICCPS)
- IEEE Conference on Decision and Control (CDC)
- American Control Conference (ACC)

Current strength of the lab:

- Small autonomy platform to validate theoretical results
- Students with diverse backgrounds (machine learning, formal methods, motion planning, etc.)
- Collaboration, including within ISU (CS, engineering), UT Austin, and Caltech

Actively looking for master's students: No

Actively looking for PhD students: Yes

Expectations from students of the lab:

- Strong mathematical background: need to be able to formalize problem statements and provide theoretical guarantees of proposed solutions
- Independence

Current funding status of the lab: 3 NSF grants, 1 Iowa DOT grant, startup fund -- looking to hire 2 PhD students

Faculty name: Andrew Miner

Name of the lab: VeriLaSt

Area of research: model checking and formal methods

Current research interests: Binary Decision Diagrams, Petri Nets, model checking, stochastic model checking

Conferences targeted for publication: CAV, TACAS

Current strength of the lab: 5 PhD students

Actively looking for master's students: Yes

Actively looking for PhD students: Yes

Faculty name: Chenglin Miao

Area of research: Internet of Things (IoT), Security and privacy, Machine learning

Current research interests: Developing novel techniques for the security, privacy, and safety of emerging IoT systems and machine learning algorithms.

Conferences targeted for publication:

MobiCom/SenSys/MobiSys/UbiComp/S&P/CCS/Security/NDSS/AAAI/IJCAI

Actively looking for master's students: Yes

Actively looking for PhD students: Yes

Faculty name: Ali Jannesari

Name of the lab: Software Analytics and Pervasive Parallelism Lab

Area of research: ML and HPC, Software Analytics

Current research interests: The intersection of ML and HPC, Software Analytics
Research directions willing to pursue (in future): The intersection of ML and HPC, Software Analytics

Conferences targeted for publication: SC, IPDPS, ICS, HPDC, ICML, NeuRIPS, ICCV, CVPR, PPOPP, PACT, ICSE/FSE

Current strength of the lab: High-Performance Deep learning, AI-assisted performance engineering

Actively looking for master's students: yes

Actively looking for PhD students: yes

Expectations from students of the lab: very successful warm-up phase (12 - 18 months — depending on the progress — active working with major contribution a publication paired by senior students

Current funding status of the lab: after the warm-up phase (12 - 18 months depending on progress)

Faculty name: Forrest Bao

Area of research: Natural Language Processing (NLP), Electronics Design Automation (EDA)

Current research interests: Automated Evaluation of AI-Generated Texts, Text-based human computer interaction (HCI), AI-driven circuit routing in PCBs and ICs

Research directions willing to pursue (in future): AI text generation with human feedback, Common-sense reasoning via Large Language Models, Automated Planning via Large Language Models

Conferences targeted for publication: ACL, NAACL, EMNLP, EACL, COLING, DAC, ICCAD, DATE

Current strength of the lab: Track record of publishing at top NLP or EDA conferences, strong industry collaboration and entrepreneurship, freedom for students

Actively looking for master's students: Yes

Actively looking for PhD students: Yes

Optional: Optional directions include machine learning in biology or medicine

Expectations from students of the lab: Strongly self-motivated, high caliber of work ethics

Current funding status of the lab: one NSF grant (expiring), industry research gifts (2-3 students)