Shuijing Liu (刘水竞)

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Education

University of Illinois at Urbana Champaign August 2018—May 2020 (Expected)
Master of Science in Electrical Engineering (CGPA: 3.91/4.0) Urbana, IL
Advisor: Prof. Katherine Driggs-Campbell
Research interests: Reinforcement Learning, Robotics, Artificial Intelligence
Coursework: Learning-Based Robotics, Statistical Reinforcement Learning, Safe Autonomy, Models of Cognitive Processes, Natural Language Processing

University of Illinois at Urbana Champaign August 2014—May 2018
Bachelor of Science in Computer Engineering, minor in Art and Design (CGPA: 3.86/4.0) Urbana, IL
Coursework: Computer Vision, Bioinformatics, Machine Learning, Data Mining and Warehousing, Algorithms and Models of Computation, Artificial Intelligence, Database Systems, Numerical Analysis, Programming Languages

Publications

Conference Publications

- P. Chang, **S. Liu,** H. Chen, and K. Driggs-Campbell, "*Robot Sound Interpretation: Combining Sight and Sound in Learning-Based Control*", In IEEE International Conference on Robotics and Automation (ICRA), 2020. (Under review)
- Pattanaik, **S. Liu*,** Z. Tang*, G. Bommannan, and G. Chowdhary, "*Robust Deep Reinforcement Learning with Adversarial Attacks*", In 17th International Conference on Autonomous Agents and Multiagent Systems (extended abstract)

Undergraduate Thesis

- **S. Liu,** A. Parameswaran, and J. Peng, "*Prostate Cancer Diagnosis by Deep Learning*".

Research Projects

Decentralized Human-Robot Interaction in Crowded Environments June 2019—Present
Advisor: Prof. Katherine Driggs-Campbell

- Developed a simulated crowded environment for TurtleBot3

Robot Sound Interpretation: Combining Sight and Sound in Learning-Based Control July 2019—September 2019
Advisor: Prof. Katherine Driggs-Campbell

- Designed and conducted empirical experiments to test a novel deep network, analyzed results

Cancer Diagnosis with Deep Learning May 2017—May 2018
Advisors: Prof. Aditya Parameswaran and Prof. Jian Peng

- Proposed, built, and trained ResNet binary classifiers on biopsy cancer image datasets
- Proposed and implemented ensemble methods that boosted the performance of ResNet models by a considerable amount
- Achieved good testing performance on US Biomax prostate cancer dataset

Robust Deep Reinforcement Learning with Adversarial Attacks March 2017—May 2018
Advisors: Prof. Girish Chowdhary and Anay Pattanaik

- Implemented novel adversarial attacks on deep Reinforcement Learning (RL) algorithms including DDQN and DDPG
- Implemented robust RL algorithm that leveraged the adversarial attacks, achieved good performance compared with state-of-art deep RL algorithms

Teaching Experience

Graduate Teaching Assistant

- ECE 470: Introduction to Robotics Fall 2019—Present
  - Developed homework and quizzes on PrarieLearn, an online learning and assessment tool
  - Monitored and Advised student projects
- ECE120: Introduction to Computing (Head TA**)** Fall 2018—Spring 2019
  - Lead discussion sections, held office hours, and graded exams

Undergraduate Course Assistant

- ECE110: Introduce to Electronics Fall 2016—Spring 2018
  - Run laboratory sections of the course: answer questions from students, and help students solve technical problems

Skills

Programming: Python(proficient), C++ (proficient), C (proficient), Matlab (intermediate), MySQL(intermediate), PHP(intermediate), Haskell (intermediate), HTML(intermediate), Keras(proficient), Tensorflow(intermediate), PyTorch (intermediate)

Software: Latex (proficient), Adobe Photoshop(intermediate), Adobe Illustrator (intermediate), Adobe After Effects(intermediate)

Honors and Awards

- Lauren Kelley Memorial Scholarship Fall 2017 – Spring 2018
- Professor N. Narayana Rao Scholarship Fall 2016 – Spring 2017
- Oakley Scholarship Fall 2015 – Spring 2016
- Dean's List Fall 2014, Spring 2015, Fall 2015, and Spring 2016