Kenneth Shaw

Senior at Georgia Institute of Technology: kenny@kennyshaw.net

Research:

- Carnegie Mellon Robotics Institute Summer Scholar (Summer 2019)
  - Visited under Dr. Changliu Liu's Intelligent Control Lab on Human-Robot Collaboration.
  - Started on the task assignment for understanding the optimal tasks for both agents to maximize efficiency and interactivity with factory type tasks.
  - Interfaced a new to the lab 6 DOF FANUC industrial robotics arm with Dr. Liu's SERoCS platform using my new trajectory planning algorithm.
- Georgia Tech Robotics: RAIL Lab (Aug. 2018-present)
  - Working in RAIL (Robot Autonomy and Interactive Learning) on ARL's Distributed and Collaborative Intelligent Systems and Technology (DCIST) project under Dr. Chernova and Dr. Ravichandar.
  - Single-Task Robots, Multi-Robot Tasks, Instantaneous Assignment (ST-MR-IA) problem, where heterogeneous trait robots must be allocated to team-based tasks.
  - Created a new Capture the Flag scenario in Unity3D/C# and helped with a parallel one on a physical robot swarm for Monte-Carlo analysis.
  - Currently working on how humans can best interact with and comprehend the functionality of robot teams using web-based Mechanical Turk Experiments.
- University of Southern California: Institute for Creative Technologies (Summer 2018)
  - Visited under Dr. Benjamin D. Nye, Director for Learning Science Research, originally a 10 week NSF REU, extended to 12 weeks for additional development.
  - Worked on the ONR MentorPal project that was researching and understanding the impacts of interactive mentor technology on career choices.
  - Created new ML models for two new interactive mentors and web enabled frontend.
  - Conducted field study at Naval Postgraduate School.
- VIP (Vertically Integrated Projects) Lightning From Space (Jan 2018-present)
  - Developing new multi-modal communication platform using APRS as well as cellular for bidirectional communication from weather balloon flights to ground.
  - Warren Batts & Austin Brown Innovation Award scholarship recipient for leadership and mentoring of the Controls/Electronics Subteam.

Publications:

- Glen Neville, Harish Ravichandar, Kenneth Shaw, Sonia Chernova, "Modeling Dynamic Traits for Task Assignment in Heterogeneous Multi-Robot Teams," Submitted to International Conference in Robotics and Automation (ICRA) 2020. IEEE, 2020.
- Kenneth Shaw, Jaskaran Grover, Changliu Liu, "Maximizing Agent Utility in Human-Robot Collaborative Tasks," Robotics Institute Summer Scholars' Working Papers Journal, August 2019. CMU.
- Benjamin D. Nye, Dan M. Davis, Sanad Z. Rizvi, Kayla Carr, William Swartout, David Cobbins, Kenneth Shaw, "Usability and Initial Efficacy of MentorPal, a Framework for Rapid Creation of Virtual Mentors," Submitted to Journal of Research on Technology in Education (JTRE), 2019.
- Harish Ravichandar, Kenneth Shaw, Sonia Chernova, "Strata: Unified Framework for Task Assignments in large teams of Heterogeneous Agents," Submitted to Autonomous Agents and Multi-Agent Systems (AGNT), 2019.
- Dan Davis, Kenneth Shaw, Sanad Rizvi, Mark Davis, "Quantum computing: Evaluating Potential Quantification of Projective Psychological Test Scoring," in MODSIM WORLD 2019. MODSIM, February 2019.
- Davis, D. M., Predovich, K.B., Spaulding, H. & Shaw, K. (2018), "Enhancing Menteeship: Improving Career Selection for Potential DoD Personnel," SISO Fall Simulation Innovation Workshop, Orlando, Florida:SISO.

Other Projects:

- PennApps Top 30 Winner: Used Tensorflow Image recognition to facilitate recycling.
- HackMIT Sia API challenge 1st Place: Used the Sia Blockchain for ad supported file storage.
- MIT Launch: Orama (Summer 2017)
    - Investigated Two-Factor Password Authentication using facial recognition.
- ThermoFi Wireless Thermometer and Humidity sensor (2015-2017)
    - Worked to create and sell sensors that monitored the home.
    - Created a server (node.js) which showed monitoring information about the home. (temperature, humidity, air quality etc.)
- FRC Team 293 High School Robotics (2013-2017, Currently: Advisor)
    - Lead Control Systems Engineer, President, Robot Driver, Inspector
    - Worked on workshops educating new members on programming.
    - Led many projects such as the Onboard Auto-Targeting System project for "Boulder"/Dodgeball Shot Aiming using OpenCV, on Fine Mechanism Angle Control and Custom Control Boards using TI HID Driver.
- Bitcoin Mining
    - Worked with Early GPUs and ASICS to mine Bitcoins. (2013)
    - Admin and founding member of Cryptocurrency Collectors Club on Facebook. (currently has 75,000+ members and a wealth of collated information) Active in the space in general.
    - Currently specialize in Machine Learning algorithms for short term trading.

Education:

- Georgia Institute of Technology:
    - Computer Engineering/CS Minor in Intelligence (Aug. 2017- Spring 2020) 3.92/4.0
    - ECE 2020 (Digital Logic Design), ECE 2036/2035(Programming Hw/Sw), ECE 2026 (DSP), ECE 2031 (Digital Design Lab), ECE 2040 (Circuits), ECE 3020 (Math Foun.), ECE 3030 (Physical Foun.), ECE 3056(Comp. Arc. Concurr. Energy), ECE 3550 (Feedback Controls), ECE 4560 (Robotics Automation)
    - CS 1371 (Matlab), CS 1331 (Obj. Ori), CS 1332 (Data Structures and Algos), CS 3600 (Intro AI), CS 3630 (Robot Perception), CS 4476 (Computer Vision), CS 4649 (Robot Inteli. Planning), CS 4731 (Game AI), CS 4641 (Machine Learning), CS 4646 (ML for Trading)