Jerred L. Chen

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EDUCATION

Georgia Institute of Technology, *Atlanta, GA* Expected Dec. 2022
- Mechanical Engineering BS track **GPA 3.88**
- Computer Science BS track – Concentrations in Artificial Intelligence, Modeling and Simulations
- Relevant Coursework: Differential Equations, Numerical Methods, Data Structures and Algorithms, Statistics, Intro to Artificial Intelligence, Computer Organization and Program, System Dynamics
- In progress: Design and Analysis of Algorithms, Computing and Networks, Robotics and Perception
- Victoria and Sherman Glass Scholarship – GT Houston Award

WORK EXPERIENCE

NSF REU Trainee, *Data Driven Computing REU at University of Houston* June 2020-Aug. 2020
- Received 2nd best presentation for Using Anomaly Detection to Differentiate between Short and Long Chains
- Developed cybersecurity algorithm detecting stepping-stone intruder chains
- Designed a simulated user program to collect experimental data with 200% increased efficiency
- Utilized Numpy, Pandas, Scikit-learn and Jupyter Notebook for analysis on data packets in SSH connections

RESEARCH

Laboratory of Intelligent Decisions and Autonomous Robots, *Undergraduate Researcher* Aug. 2019-Present
- Implemented RRT algorithm to perform path-planning and collision avoidance into KUKA arm simulation
- Integrated OMPL into Drake software for the LIDAR Lab to use as reference
- Improved functionality of upper-body robot with an object-oriented script for the motors
- Tuned PID gains to reach critical damping for individual fingers of the upper-body robot

PROJECTS

EyeWatch (in-progress) Dec. 2020-Present
- Pauses video or movie when webcam detects user looking away from screen
- Utilize FaceNet deep neural network model with Keras software to perform facial recognition
- Designed data set of different facial angles to be used in training and validation
- Integrate neural network model into real-time computer vision detection using Tensorflow

Simulated User Activity Program June 2020-Aug. 2020
- Simulated multiple users typing simultaneously across several terminals for faster data collection
- Implemented multithreading to represent each user's typing activity on an individual thread
- Modeled pauses between keystrokes by sampling from probability distributions of human users' data
- Designed program to automatically log data from each simulated user in a Pandas dataframe

SKILLS

- **Languages:** Experienced with Xpath, Bash, Assembly, C/C++; Proficient in Python, Java, MATLAB
- **Robotics:** Proficient in Drake (simulation software), OMPL (motion planning)
- **Data Science:** Proficient in Scrapy, Selenium, Numpy, Pandas, Matplotlib, Jupyter Notebook
- **Version Control:** Git
- **OS Systems:** Proficient with Linux (Ubuntu), Windows
- **Hardware:** Wiring, Arduinos, motor drivers, linear actuators

LEADERSHIP/VOLUNTEER

TEALS Volunteer, *Technology Education and Literacy in Schools Program* Jan. 2021-Present
- Co-taught along high school teacher introductory computer science concepts
- Assisted high school students in learning basics of Python

Resident Assistant, *Georgia Tech Department of Housing and Residence Life* Aug. 2019-Present
- Served as veteran RA on staff to give other RA's advice in handling duty situations and aspects of the job
- Collaborated with other RA's to maintain a sense of safety and community within the residence halls
- Communicated policies, announcements, and event details to the residents on a weekly basis

Sanctuary Choir Singer, *Peachtree Christian Church* Sept. 2018-Present
- Performed with the Peachtree Church Choir every Sunday service
- Led the tenor section during rehearsals, aided other singers with music and performances