Matthew Bronars

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EDUCATION

Georgia Institute of Technology – Master's
- **Major:** Computer Science
- **GPA:** 4.0
- **Specialization:** Computational Perception and Robotics
- **Coursework:** Artificial Intelligence, Computation Data Analysis, Multi-Robot Systems

University of California, Berkeley – Bachelor's
- **Majors:** Electrical Engineering and Computer Science (EECS), Mechanical Engineering
- **GPA:** 3.69
- **Coursework:** Intro to Artificial Intelligence, Machine Learning, Optimization Models, Efficient Algorithms, Software Engineering, Mechatronic Design, Computer Graphics, Control Systems
- **Commendations:** Certificate in Design Innovation, Dean's List - College of Engineering (Fall 2020)

SKILLS

Programming: Python, Java, C, OpenCV, TensorFlow 2.0, MATLAB, Arduino, Ruby, SQL
Design: Solidworks, AutoCAD, Laser Cutting, Soldering, 3D printing, Rapid Prototyping, PDB Design

PROFESSIONAL EXPERIENCE

Research Assistant, Dr. Danfei Xu – Georgia Institute of Technology *Sept 2022 – PRESENT*
- Working in the Robotic Learning and Reasoning Lab (RL2) on algorithms for learning from demonstrations
- Evaluating the performance of offline reinforcement learning and behavioral cloning algorithms on multi-agent systems. Specifically determining how success rates scale with the addition of simulated data.

Computer Vision Intern, Schlumberger Doll Research – Schlumberger *May 2021 – Dec 2021*
- Implemented visually assessed failure detection of operating equipment in industrial environments
- Used OpenCV for image segmentation and TensorFlow to design and train a CNN for binary classification of the segmented regions as either damaged or not damaged
- Created object oriented tools and microservices for distributed use across the company

Research Assistant, Sohn Microfluidics Laboratory – UC Berkeley *May 2019 – May 2022*
- Automated analysis of stem cell data through object segmentation and tracking
- Segmented cells by fine-tuning the top layers of a pre-trained U-Net CNN with hand annotated images and tuning hyper-parameters like learning rate and regularization terms
- Wrote cell tracking scripts in python by calculating the path that minimizes total distance traveled by cell centroids from one frame to the next

X-Force Fellow, National Security Innovation Network – DoD *June 2020 – Sept 2020*
- Conducted research and development in the field of small unmanned aerial systems to fulfill real-world requirements of a subset of the Department of the Navy
- Calculated weight and power limits based on constraints set by team
- Designed chassis in Solidworks that minimized volume while avoiding signal interference

Research Assistant, Dr. Gordon Hanson – UC San Diego *June 2018 – Sept 2018*
- Processed large sets of satellite images from Google Earth Engine. Found optimal routes between Indian population hubs by writing python scripts that analyzed land use/slope

EXTRA CURRICULARS

Sage Mentorship Program *Aug 2019 – PRESENT*
- Work with struggling students at a local elementary school in order to inspire a pursuit of higher education and bolster their knowledge in Math and Science.

Science Fair *Jan 2017 – May 2017*
- Designed device for home detection of potential breast cancer biomarkers. 1st place San Diego Science Fair, 3rd place California State Science Fair, finalist Intel International Science Fair

POSTER PRESENTATIONS

Sugarland Innovation and Digital Technology Fair - Vision Based Cable Anomaly Detection *Sept 2021*
Undergraduate Research Fair (UCB) - Automated Neural Stem Cell Segmentation and Tracking *Nov 2021*