Pranav Athreya

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EDUCATION

M.S. Electrical Engineering | California Polytechnic State University | San Luis Obispo, CA   **Sept. 2024 - Present**

B.S. Applied Mathematics, C.S. Minor | Texas A&M University | College Station, TX   **Aug. 2014 - May 2018**

TECHNOLOGIES, COURSEWORK, & SKILLS

Vision Based Robotic Manipulation, KiCAD, Pytest, Python, C/C++, Embedded Systems, Deep Learning, Jupyter

Computer Vision, OpenCV, Rviz2, Gazebo, ROS2, PyTorch, PID Control, Kalman Filtering

ACADEMIC EXPERIENCE

Pick-and-place with Vision-based Robotics (4-DOF)   **Sept. 2024 - Present**

- [Link to demo](), [Link to codebase]()
- Wrote Python functions to interface with **OpenManipulator-X** robot arm and **Intel RealSense** camera
- Detecting **singularities** or loss of degrees of freedom in the task space
- **Inverse kinematics** to map task space to joint space
- **Forward kinematics** to get end-effector pose of arm
- **Cubic / Quintic trajectory generation** of way points in joint / task space
- **PID control** to output necessary end-effector velocity
- Calculate **Manipulator Jacobian** to compute joint velocities from end-effector velocity
- **3D point set registration** for **pose estimation** in camera-to-hand setup
- **OpenCV detection and classification** of spheres by color in workspace

Magic Wand Detection & Tracking   **Sept. 2024 - Present**

- [Link to demo](), estimated and tracked 3D pose of target using pinhole projection and Hough circle detection

Researcher, Cal Poly Cyber-Physical Systems Lab   **Sept. 2024 - Mar. 2025**

- Developed Extended Kalman Filter for cooperative localization in multi-agent systems

PROFESSIONAL EXPERIENCE

Electrical Engineer - Neurocom   **May 2025 - Present**

- PCB design for haptics product to enhance communication and safety for the military and first responders

Software Engineer (Python) – Exos Financial   **Mar. 2022 - Oct 2022**

- Wrote **data model** APIs to enable trading of new securities using **SQLAlchemy**, **Pandas**, and **OOP**
- Wrote **Faust** and **Kafka** feed of **Bloomberg TOMS** data to enable real-time risk management
- Wrote pricing data pipeline in **Python** using **Prefect** scheduler to automate **300 hours** of manual accounting work
- Built **FIX** feed using **Python** & **Docker-Compose** to account for and manage risk of cryptocurrency trades
- Monitored health of **Kubernetes** pods using **Kibana** and **Grafana** to support trading operations

Application Support Engineer – Scotiabank   **Apr. 2021 - Dec 2021**

- Wrote **Python Apache Airflow** server to automate **576 hours of Dodd-Frank Act compliance work**

Software Engineer, US Power Trading – CCI Energy Commodities   **Sep. 2018 - Feb. 2021**

- Wrote **REST API** wrapper to provide **1,000+ sources of power and gas sensor data** for price modeling
- Wrote **tests** and **debugged** code for database upgrade that sped-up query time by **70%** for research needs
- Wrote **Python** scraper using **pypdf2** to automate **156 hours** of data entry work to analyze pipeline outages
- Provided **on-call L3 support** for **1,400** production processes to support trading and research operations