Pranav Ponnivalavan

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Languages: English (Native), Japanese (Intermediate [N3])

CURRENTLY WORKING ON IMPROVING IN-HAND MANIPULATION USING TACTILE SENSING & SENSORY ATTENUATION

Seeking research opportunities & internships

KEY SKILLS Python | C | C++ | ROS | Linux(Ubuntu) | Fusion360 | Github | Git

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PROFESSIONAL EXPERIENCE

Tata Consultancy Services - Japan
June 2024 - August 2024

Robotics & Digital Engineering - Internship

- Utilized Autodesk Fusion 360, a 3D Computer-Aided Design (CAD) software, to create DIY Universal Robot 5e jig designs and fabricated them using a 3D printer.
- Leveraging existing Real Haptics technology, extracted force data with a jig attached to the robot setup.
- Ideated and implemented a machine-learning model to classify and visualize the swiping motion into successful and unsuccessful events, using time-series analysis.
- Developed code for four distinct machine learning models using Python: Logistic Regression, Random Forests, Gradient Boosting, and Recurrent Neural Networks.

Daimler Truck Asia
February 2023 - May 2023

Technical Operations - Internship

- Assisted in analyzing robot equipment maintenance, and utility operation data and identifying opportunities for optimization and efficiency enhancement.
- Fostering positive relationships with stakeholders to identify pain points in previous projects for leveraging technology solutions and state-of-the-art automation systems.
- Overseeing the development and implementation of effective facility management projects, energy efficiency initiatives, and practices.

EDUCATION & CERTIFICATIONS

Waseda University
Undergraduate Student
September 2021 - September 2025

- GPA – 3.5/4.0 – 3 scholarships awarded (Partial Tuition Waiver + JASSO Monbukagukusho + Waseda Reserved Scholarship for Undergraduates)
- Minor in Computer Science & Communications Engineering
- Classes: Mechatronics, Control Systems, Fundamental of Robotics, Modelling & Analysis of Dynamic
- Systems, Fluid Dynamics, Material Mechanicals, Mechatronics Laboratory Advanced, Engineering
- Practice & Seminar

APL Global School
AS & A Levels
June 2011 - March 2025

- Advanced Subsidiary and Advanced Levels in Cambridge Assessment International Education (CAIE – AS & A Levels)
- A – English, Mathematics, Physics, Chemistry, Computer Science

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CONFERENCES

Seminar Presentation - AI in Recycling **May 2019**
Kyoto University, Kyoto, Japan

Created chair using eco-bricks and did a paper presentation for AI recycling-based alternative building material, which uses machines to create eco-bricks using plastic waste and pressure presses into the used plastic PET bottles to create eco-bricks and how this will positively impact the environment and engineering projects in the future.

PROJECTS

Built own 5 DOF arm & coded & tested specific tasks **March 2024 - Present**
Waseda University, Tokyo, Japan

- **Cup Stacking** with 5 DOF Arm using Joint Angle Calculation & Positional Coordinates
- **Automated Pick & Place** task with 5 DOF Robot Arm
- Used **ultrasonic sensing** and kinematics to pick and drop boxes into their corresponding bins autonomously.
- Coded in C++ and did electronic circuit wiring simulation using TinkerCAD.

DIY 2 DOF Remote-controlled Robot Arm **October 2023 - January 2024**
Waseda University, Tokyo, Japan

- Build a remote-controlled, 2-axis robotic arm for sorting processes, under zero budget, for the Mechatronics Advanced course, research, and development for 3 months, tackling issues in torque limitations, grasping control, and load calculations.
- Received **Best Project Award** from the Faculty of Iwata Laboratory.

Ping Pong Shooting Robot **October 2023 - January 2024**
Waseda University, Tokyo, Japan

- Built a ping pong shooting robot from scratch as a part of the lab team competition.
- Used a combination of software such as AutoCAD, TinkerCAD, and programming languages such as Arduino, Python and MATLAB to power the robot.
- Won the competition by shooting the most number of ping pong balls into the goal.

IR sensor based line tracing robot **April 2023 - July 2023**
Waseda University, Tokyo, Japan

- Created a driverless car prototype, research, and development for 3 months for a Mechatronics course, to improve the gear ratio and infrared sensing in the car to optimise speed and utility.

EXTRA-CURRICULAR ACTIVITIES

Google Developers Student Club **September 2022 - October 2024**
Waseda University, Tokyo, Japan

- Part of the Education Team for 2 years and the Finance Team for 6 months.
- Hosted workshops for various undergraduates, across various topics, from Flutter, Python, C programming, Figma, etc.
