

EXPERIENCE

- Honda R&D** 📍 Tokyo, Japan
 - Staff Engineer 📅 June 2023 – Present
 - Applied research in depth estimation, SLAM, and other perception modules for the Avatar tele-operated robot.
 - Actively investigating the use of event cameras to identify and develop innovative applications in humanoid robotic systems.
- Connected Robotics Inc.** 📍 Tokyo, Japan
 - Robotics AI Research Engineer 📅 Jan. 2019 – May 2023
 - Expertise in developing computer vision inspection systems for food factories.
 - Successfully led a team in creating a robot system for bento-box production at a food factory.
 - Conducted joint research with AIST to improve camera depth data in challenging lighting conditions.
 - Proven ability to design and prototype systems through simulation before hardware development.
 - Specialized in computer vision research and development, including object detection, synthetic data generation, grasp pose estimation, and automatic data collection for a dishwasher robot.
 - Mentored interns in cutting-edge research projects utilizing GANs, mobile robots, and new hardware technologies.
 - Proficient in various types of cameras, including stereo-camera, time-of-flight, structured light, and event-based cameras.
- GV Lab, Tokyo University of Agriculture and Technology** 📍 Tokyo, Japan
 - Data Scientist - Part Time 📅 Jan. 2022 – July 2022
 - Proven leadership skills by successfully leading a team of students on a joint research project with AMADA AI Innovation Lab.
 - Utilized expertise in AI to analyze motion-capture data of part manufacturing and improve training for future workers.
- GV Lab, Tokyo University of Agriculture and Technology** 📍 Tokyo, Japan
 - Research Intern 📅 March. 2018 – Aug. 2018
 - Increased engagement and conversation time between a Pepper robot and human subjects through the implementation of unsupervised learning, engagement recognition, chatbot, and face recognition techniques.
 - Experienced in conducting experiments in real-world settings with human subjects.
 - Accomplished publication of research paper at an international conference, showcasing expertise in the field.
- Shiva Sakthi Systems-ISO Certified Manufacturer** 📍 Bangalore, India
 - Quality Engineer 📅 Aug. 2014 - Jan 2016
 - Conducted and supervised quality control for mechanical component production.
 - Successfully applied Six Sigma methods to improve efficiency and productivity in manufacturing processes.
 - Contributed to achieving ISO-9001 BSI re-certification.
 - Strong interpersonal and communication skills in resolving quality issues with clients.
- Bosch Ltd.** 📍 Bangalore, India
 - Project Trainee 📅 Feb. 2014 – June. 2014
 - Improved a quality test on a manufactured component by applying statistical analysis techniques.
 - Collected a large dataset of manufactured parts over a period of two months and conducted thorough data

validation and statistical analysis.

- Successfully demonstrated through data analysis that there was no correlation between the current quality test and the manufactured dimensions, leading to the improvement of the quality control process.

• Tokyo English Lifeline

Volunteer

📍 Tokyo, Japan

📅 Jan 2020 – Present

EDUCATION

• Chubu University - Machine Perception Robotics Group (MPRG)

Ph.D. in Robotic Science and Technology

📍 Aichi, Japan

📅 April 2020 - March 2023

Supervisor: Professor Hironobu Fujiyoshi

Research Topics:

Object detection, Grasp-position-detection, 6D Pose estimation, Synthetic data generation, Automated data-collection.

• Ecole Centrale de Nantes

Masters in Advanced Robotics - EMARO Plus – Grade: 84.1%

📍 Nantes, France

📅 Sep. 2017 – Aug. 2018

Key Subjects:

Advanced visual geometry, Advanced modeling of robots, sensor based control of complex robots, optimal kinematic design.

• University of Genoa

Master of Science in Robotics Engineering - EMARO Plus – Grade: 94.5%

📍 Genoa, Italy

📅 Sep. 2016 – Aug. 2017

Key Subjects:

Mobile robots, human computer interaction, optimisation techniques, non-linear control, computer vision, software architecture for robotics, system identification, modeling and control of manipulators.

• Visvesvaraya Technological University

Bachelor of Engineering in Mechatronics – Grade: 86.4%

📍 Bangalore, India

📅 Aug. 2010 – July. 2014

Key Subjects:

Analog and digital electronics, programming, embedded systems, computer graphics, signals and systems, power electronics, manufacturing technology, automotive electronics, sensors and network.

PUBLICATIONS

JOURNAL

- **S. P. Pattar**, T. Killus, T. Hirakawa, T. Yamashita, T. Sawanobori, and H. Fujiyoshi, “Automatic Data Collection for Object Detection and Grasp-position Estimation with Mobile Robots and Invisible Markers,” *Advanced Robotics*, 1-16, 2022.
- **S. P. Pattar**, T. Hirakawa, T. Yamashita, T. Sawanobori, and H. Fujiyoshi, “Single suction grasp detection for symmetric objects using shallow networks trained with synthetic data,” *IEICE Transactions on Information and Systems*, vol. E105.D, no. 9, pp. 1600-1609, 2022.

CONFERENCES

- **S. P. Pattar**, E. Coronado, L. R. Ardila, and G. Venture, “Intention and Engagement Recognition for Personalized Human-Robot Interaction, an integrated and Deep Learning approach,” *2019 IEEE 4th International Conference on Advanced Robotics and Mechatronics (ICARM)*, 2019, pp. 93-98, doi: 10.1109/ICARM.2019.8834226. (*Finalist for Best Student Paper Award*).
- W. S. Lo, C. Yamamoto, **S. P. Pattar**, K. Tsukamoto, S. Takahashi, T. Sawanobori, and I. Mizuuchi, “Developing a Collaborative Robotic Dishwasher Cell System for Restaurants.” *In International Conference on Intelligent*

PATENTS

- K Tsukamoto, WS LO, T Killus, **S. P. Pattar**, “Gripping system, gripping method, and storage medium.” *US Patent App. 18/099,057, 2023.*

AWARDS AND ACCOMPLISHMENTS

- Finalist for Best Student Paper Award at ICARM 2019.
- JASSO Scholarship for Master Thesis at Tokyo University of Agriculture & Technology.
- Consortium Scholarship for European Master in Advanced Robotics.
- Erasmus European Exchange Program Scholarship.

TECHNICAL SKILLS

- **Languages**
Python, C++, Bash, C#, Rust.
- **Technologies and Frameworks**
Tensorflow, Keras, Pytorch, OpenCV, Git, Django, NLTK, 3D Printing.
- **OS**
Linux, Windows, MacOS.
- **Tools**
Unreal Engine 4, Unity, Omniverse, ROS, RoboDK, SolidWorks, Fusion 360, MATLAB, Gazebo, Robot Studio.

ONLINE COURSES AND CERTIFICATIONS

- **Introduction to Machine Learning in Production**, deeplearning.ai, Coursera.
- **ROS2**, Udemy.
- **Generative Adversarial Networks (GANs) Specialization**, deeplearning.ai, Coursera.
- **Reinforcement Learning**, Alberta Machine Intelligence Institute, Coursera.
- **TensorFlow in Practice Specialization**, deeplearning.ai, Coursera.
- **Deep Learning Specialization**, deeplearning.ai, Coursera.
- **Fundamentals of Accelerated Computing with CUDA Python**, NVIDIA Deep Learning Institute.
- **Introduction to AI in the Data Center**, NVIDIA Deep Learning Institute.
- **Machine Learning Crash Course (MLCC-2017) - 6 credits course**, UNIGE and MIT.
- **Machine Learning**, Stanford Online, Coursera.
- **SolidWorks**, CADD Centre Ltd..
- **CATIA V5R20**, Swamy Design Solutions Pvt. Ltd.
- **Mechatronics and PLC**, VTU-BOSCH Rexroth Centre of Competence in Automation Technology.

LANGUAGE SKILLS

- **English:** Fluent (C2).
- **French and Italian:** Intermediate.
- **Hindi and Kannada:** Native.
- **Japanese:** Intermediate (N3).