Marika Nishi

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EDUCATION

University of Pennsylvania, School of Engineering & Applied Science | Philadelphia, PA, United States *May 2026*
Candidate for Master of Science in Engineering, *Major: Robotics* | *Concentrations: Computer Vision, Autonomous Driving* GPA: 3.90/4.0
University of Tokyo, Faculty of Engineering | Bunkyo, Tokyo, Japan *March 2022*
Bachelor of Engineering, *Major: Mechanical Engineering* GPA: 3.64/4.0

SKILLS & RELEVANT COURSEORK

Software Skills: ROS, ROS2, C++, Python, Pytorch, Matlab, Arduino IDE, Simulator (CoppeliaSim, Simulink), OpenCV, CAD (Autoware, SolidWorks)
Hardware Skills: Kalman Filter, Perception, LiDAR, RGB camera, IMU, RTK-GPS, low-accuracy GPS
Other Skills: Leadership, Project Management, Communication, Teamwork
Relevant Coursework: Computer Vision; Machine Perception; Machine Learning; F1/10 Autonomous Racing Cars; Automotive Engineering; Learning in Robotics; Advanced Robotics; Dynamics and Control

EMPLOYMENT EXPERIENCE

BOSCH | *Software Intern*, Tsuzuki, Kanagawa, Japan *August 2023 – September 2023*

- Designed and built map to enhance autonomous driving by visualizing key information, such as routes and vehicle state using MATLAB; helped company's engineers in 14 countries understand signals sent from cars visually
- Discovered bug in BOSCH's software that processed location signals from cars; made sure that engineers could find correct vehicle positions
- Presented to approx. 100 employees, including managers; showed the company what my group was developing
- Communicated with colleagues from 10 countries and different majors; made outcomes reflecting diverse opinions

University of Tokyo | *Teaching Assistant*, Tokyo, Japan *April 2022 – January 2023*

- Instructed skills in using sensors, writing ROS codes to process sensor data and data analysis for autonomous braking

DMG MORI | *Industrial Practices Intern, Additive Manufacturing R & D*, Iga, Mie, Japan *August 2021 – September 2021*

- Monitored and analyzed performance tests of additive manufacturing machines
- Investigated additive manufacturing methods, e.g. 3D printing; proposed innovative solutions to technical challenges
- Translated and summarized English academic paper on additive manufacturing, effectively conveying key insights to the entire Additive Manufacturing Department

PROJECTS

Research of Traffic Collision Prediction System | *C++, ROS, Extended Kalman Filter, Sensor Utilization* *April 2022 – March 2023*

- Designed and built collision prediction system among pedestrian, cyclist, and intelligent wheelchair
- Wrote C++ ROS codes that detected pedestrians and cyclists based on LiDAR data
- Conducted sensor fusion using Extended Kalman Filter; estimated pedestrians and cyclists' positions
- Operated RTK-GPS, low-accuracy GPS, LiDAR, and IMU to collect and integrate data into system development

Teleoperated Santa Robot| *Arduino IDE, Hardware Design, Soldering, Leadership* *October 2021 – January 2022*

- Led 4-person team to design and build teleoperated Santa robot to distribute presents to miniature houses; used Arduino, soldering, data transmission, and hardware implementation

Sushi-Making Robot |*CAD, Inventor, 3D Printer Operation, Robot Simulator, CoppeliaSim, Arduino IDE* *October 2021 – January 2022*

- Designed and built sushi-making robot with CAD, 3D printer, simulator and Arduino; won first place in 'Best Gripper', Best Master Design', and 'Smoothest Teleoperation'