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’