

Sashenka Gamage

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Education

- The Hong Kong Polytechnic University, Hong Kong SAR** *Sept 2022 – May 2026*
BEng(Hons) Electronics Systems and Internet of Things, W GPA: 3.87/4.3
- Fully funded by the Belt and Road Scholarship, Top 5% of the Faculty of Engineering, Dean's Honor's List
- University of Wisconsin – Madison, WI, USA** *Jan 2025 – May 2025*
Semester Exchange, GPA: 3.89/4.0, Wong-Tit Shing Scholarship for Engineering Exchange
- University of Cambridge, Girton College, UK** *July 2023 – Aug 2023*
Summer Exchange: Jet Engines, Nanotechnology, and Quantum Technology, Grade: A

Selected Experience

- Undergraduate Researcher** *PolyU, Hong Kong SAR*
Graduate School of PolyU *Aug 2023 – Dec 2025*
- Conducted research on Human-Robot Collaboration in smart manufacturing environments by analyzing autonomous drone behavior dynamics in collaborative industrial tasks.
 - Designed and implemented an LLM-based UAV navigation framework from scratch, resulting in a first-author publication at ICRCV 2025.
- Undergraduate Researcher** *Madison, Wisconsin, USA*
BADGER LAB- University of Wisconsin-Madison *Feb 2025 – May 2025*
- Developed a ROS2 Nav2-based autonomous navigation stack for "Weeblebot," [🔗](#), a passive self-balancing robot with a custom two-wheel mechanical design.
 - Independently addressed challenges in Nav2 by developing custom AMCL nodes when using pre-built maps for navigation and localization.
- Drone AI Engineering Intern** *Hong Kong SAR*
Life Sparrow Solutions Limited [🔗](#) *June 2025 – Aug 2025*
- Implemented 3D path planning using A* and Cesium 3D maps, and integrated an LLM pipeline for waypoint generation from natural language commands.
 - Diagnosed and resolved low-level integration issues across DJI drone hardware, Dockerized backend services, and DJI Cloud API components, improving reliability in a cloud-based UAV management system.
- Engineering Intern** *Hong Kong SAR*
CLP Power Hong Kong [🔗](#) *June 2024 – Aug 2024*
- Received the CLP Scholarship and worked under the Electrical and Control division of the CLP Castle Peak Power Station Maintenance team.
 - Conducted design review of 11kV station supply systems, evaluating lifecycle and reliability of digital protection relays in high-voltage switchboards and proposing safety improvements.
- Undergraduate Research Assistant** *PolyU, Hong Kong SAR*
Department of Electrical and Electronics Engineering *Jan 2023 – May 2024*
- Contributed to the CLP Generator Inspection Robot project by designing and debugging robot control and junction boards for generator inspection applications.
 - Trained the MiR250 Robot to perform waypoint navigation by mapping new pathways.

Publications and Conferences

- Autonomous Drone Navigation with NLP for Human-Centric Smart Manufacturing.** [🔗](#)
Sashenka Gamage, Tian Wang, Ke Wan, Pai Zheng *Oct 2025*
- International Conference on Robotics and Computer Vision, published in IEEE Xplore.
- LLMs for Game Theory: Entropy-Guided In-Context Learning and Adaptive CoT Reasoning** [🔗](#)
Tommaso Felice Banfi, *Sashenka Gamage* *Nov 2025*
- Presented at AAAI 2026, Logical and Symbolic Reasoning in Language Models.

Proactive Agentic Whiteboards: Enhancing Diagrammatic Learning

- Preprint arXiv:2512.01234, 2025.

Enhancing Human-Robot Collaboration in Smart Manufacturing.

- National Conference on Undergraduate Research 2025, Pittsburgh, PA – Accepted student [poster](#) [presentation](#).

Autonomous Navigation for a Two-Wheeled, Self-Balancing Robot.

- UW Madison Undergraduate Symposium 2025 – Accepted student [poster](#) [presentation](#).

Selected Projects

YOLO-I/O Robot

[github repo](#) [↗](#)

- Developed a ROS2 and OpenCV-based interactive robot using YOLOv8 for real-time object detection and PS5 controller-assisted teleoperation.

Intelligent UAV Systems for GNSS-based Remote Sensing on Vegetation

Aug 2025 - Present

- Developing an autonomous navigation system for a UAV, using Boustrophedon Decomposition and A* algorithm to conduct surveys over vegetation.

Co-Founder and Product Designer: Go Park

June 2023 - Jan 2024

- Developed GoPark, a web application enabling users to locate and reserve nearby parking spaces in advance.
- Secured HKD 10,000 from the [HKSTP Ideation Program](#) [↗](#) and HKD 20,000 from the PolyU Proof-of-Concept Scheme.

Visual Navigation for Autonomous Vehicles

May 2025 - Present

- Optimized trajectories using quadratic programming and Euler-Lagrange methods, and implemented SIFT-based feature detection and matching in OpenCV.

Product Design: Eco-Flight

Jan 2024 - April 2024

- Developed software for aircraft ground-emission prediction and routing optimization to support Net Zero Carbon goals.
- Won the HKEAS Global Grand Challenges Pitch Competition, and received HKD 50,000 to further develop the product.

UI/UX Designer: Bera Tiles - The Sri Lankan Music X Gaming App

2021

- Designed UI/UX for an interactive app integrating traditional Sri Lankan drum sounds and cultural games.
- App won Best App, Most Popular App, and Best Flow & Functionality at the Sri Lankan All-Island Hackathon 2021.

Selected Awards

- NUS Young Fellowship 2026
- CLP Scholarship (Awarded for only one student in the Department of Electrical and Electronics Engineering)
- Winner HKEAS Global Grand Challengers Pitch Competition 2024
- Dr Winnie S M Tang - PolyU Student Innovation and Entrepreneurship Scholarship
- HKSAR Government Reaching Out Award 2023 (In recognition for the Summer Exchange at University of Cambridge)
- President's Guide Award (The highest award given by the Sri Lanka Girl Guides and Girl Scouts Association)

Community Service and Leadership

Social Poverty Alleviation Project, Chiang Mai, Thailand

May 2023

- Conducted a 10-day service-learning project to educate young children about professional serving skills and health safety.

Internal Vice President, Entrepreneurship Society, PolyU

2024 – 2025

- Coordinated innovation-focused events and organized entrepreneurship workshops and networking sessions, engaging 100+ participants. Successfully organized the largest Hong Kong Techathon workshop at PolyU.

Secretary General, South Asian Society, PolyU

2023 – 2024

- Organized events to celebrate South Asian culture and promote South Asian values among local and non-local students. Successfully organized 10+ events with over 200 participants in one year.

PolyU Orchestra, Violinist

2022 – Present

Technical Skills

Programming: Python, C++ (projects on [GitHub](#) [↗](#)), CSS, HTML, React.js

Robotics: ROS1 Noetic, ROS2 Humble, Gazebo, Nav2, OpenCV, Arduino, Raspberry Pi, NVIDIA Jetson Orin.

For the full list of awards, experiences, and publications, visit: <https://sashenkagamage.github.io/>