

# ABIRAMI BASKARAN

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## WORK EXPERIENCE

### Defence Science Technology Agency (DSTA) – Land Systems

Jun 2025 – Aug 2025

*Robotics Engineer Intern (ROS2, Radio Communication, wireless video streaming, 3D modelling)*

Singapore, SG

- Independently worked on a project with national-level contribution (NDP 2025),
- Experience includes, integrating mechanical design, 3D modelling, and software development with user-friendly updates.
- Independently implemented wireless video transmission across both local network and radio communication for reliable real-time streaming.
- Gained hands-on experience through self-learning and experimentation, combining robotics, communication systems, and mechanical concepts effectively

### Singapore Polytechnic – Digital Twinning Systems

Mar 2024 – Jun 2024

*Research Assistant (Power engineering, Machine Learning Algorithm, Artificial Intelligence, Digital Twin)*

Singapore, SG

- Spearheaded the development of a digital twin and self-correction algorithm for Brushless DC motors to enhance system accuracy and performance.
- Conducted extensive research on motor behaviour and applied findings to create an integrated application for real-time monitoring and analysis.
- Took on extended responsibilities by planning project schedules and onboarding new interns to support ongoing research activities.

### Singapore Polytechnic – Digital Twinning Systems

Sep 2023 – Feb 2024

*Software & AI Engineer Intern (Digital Twin, Electric Vehicle Batteries, Neural Network, Web development)*

Singapore, SG

- Developed a Digital Twin-based Battery Management System (BMS) for Electric Vehicle batteries, integrating AI with power engineering concepts to enhance fault detection and monitoring.
- Designed and implemented algorithms that improved fault detection accuracy from 87% to nearly 100%, enabling more reliable system diagnostics.
- Self-learnt power technology fundamentals to bridge computing and electrical engineering, creating a 3D visual application for real-time battery performance tracking.

### IT Block – Tech Support

Jun 2021 – Aug 2021

*IT Technician Intern (IT Hardware & Software Support, Research Skills)*

Singapore, SG

- Provided IT support and troubleshooting services to assist clients in resolving technical issues efficiently.
- Conducted research and critical analysis to identify and implement effective solutions for system improvements.
- Submitted weekly security reports and coordinated product deliveries, ensuring smooth operations and client satisfaction.

## EDUCATION

### National University of Singapore

Aug 2024 - May 2027

*Bachelor of Engineering, Electrical Engineering with Minor in Computing*

- Coursework: Digital Design, FPGA, Machine Learning, Data Structure Algorithm, Electrical Energy Systems, ...

### Singapore Polytechnic

Apr 2022 - Mar 2024

*Diploma in Computer Engineering, Specialised in Computer Application*

- Coursework: DevOps, OOP, DSA, MLAI, Client Server & Mobile Application, Embedded Computer, Microprocessor, ...

### Institute of Technical Education College Central

Jan 2020 – Mar 2022

*Higher Nitec in Electronics Engineering*

- Coursework: Digital & Analogue Principles & Applications, Electrotechnology, Advanced Applied Electronics, ...

## PROJECTS & ACHIEVEMENTS

### Best Freshmen Hack in Hack&Roll (24-hour hackathon)

2025

- Built a robotic companion with image and speech recognition to assist users in exercising by following their actions and providing motivational feedback.

### First Prize Winner in NTU Deep Learning Week (4 days hackathon)

2024

- Developed an application employing machine learning and computer vision to detect presentation habits, predict emotions through voice modulation, and deliver personalised feedback with generative AI.

### Championship in Dell InnovateFest (Inaugural Competition)

2023

- Developed a Mobile Application with Augmented Reality, real-time chat, and a unique interface catered towards people with intellectual disability (PWID). With support from M.I.N.D.S., the app was suitable for use and encourages PWID to socialise and play sports.

### People's Choice Award in Samsung Solve For Tomorrow (Top 5 Finalist)

2022

- Built a well-rounded robotic bear controlled by a mobile app for paediatric children. With a pulse and thermal sensor nurses can monitor and with a real time voice communication, parents can speak with their child while working.

## LEADERSHIP

### NUS ECE Undergraduate Student Council – President

Aug 2025 – Present

- Overseeing a team to plan and execute academic, social, and community initiatives for over 1,000 students.
- Developed and implemented strategies to enhance student engagement
- Project Director for NUS ECE Internship & Career Fair 2026

## TECHNICAL SKILLS AND TOOLS

**Programming languages/frameworks:** Python, Java, PHP, Assembly, Verilog, C++

**Technical Skills:** Data Structure Algorithm, Object Oriented Programming, Web & Mobile Development, Artificial Intelligence, IOT, Microcontroller Applications, Embedded Systems, Computer Interfacing, Data Engineering, FPG System

**Tools:** Pandas, NumPy, Flask, MongoDB, Computer vision, Autodesk Fusion 360

**Certifications:** IOT, Docker Fundamentals, Kubernetes Fundamentals

**Certified:** Google IT Support