


Pramuka M. Sooriya Patabandige

CONTACT INFORMATION	Systems and Network Lab, School of Computing, National University of Singapore	pramuka@u.nus.edu LinkedIn Google Scholar
RESEARCH INTERESTS	My current research focuses on low-power wireless communication, specifically the design of highly energy-efficient RF receivers. Additional interests include low-power and resource-constrained wearable computing, embedded systems for health sensing and remote monitoring, and the application of large language models (LLMs) for sensor data analysis.	
EDUCATION	National University of Singapore (NUS) , Singapore Ph.D. in Computer Science <ul style="list-style-type: none">Completed Qualifying ExaminationGPA: 4.63 / 5.00	Aug '23 - Present
	University of Jaffna (UoJ) , Sri Lanka B.Sc. Engineering (Hons) in Electrical & Electronic Engineering <ul style="list-style-type: none">Gold MedalistGPA: 3.75/4.00 (First Class)Ranked 1st of 125	Oct '17- Aug '22
EXPERIENCE	NUS-NCS Joint Centre for Research in Cybersecurity , NUS, Singapore <i>Research Assistant</i> <ul style="list-style-type: none">Advisor: Prof. Ambuj VarshneyConducted a study on the utilization of LLMs for analysing embedded sensor data.	Mar '23 - Aug '23
	Department of Electrical and Electronic Engineering , UoJ, Sri Lanka <i>Academic Instructor</i> <ul style="list-style-type: none">Facilitated and supervised the laboratory sessions for the students, and graded lab reports, quizzes, and assignments.	Sep '23 - Mar '23
	Sri Lanka Telecom-SLIoT Design and Innovation Lab , University of Moratuwa(UoM), Sri Lanka <i>Undergraduate Research Intern</i> <ul style="list-style-type: none">Advisor: Dr. Kutilla GunasekeraDeveloped an indoor air quality detecting IoT Node.Attended Training Sessions on the development of IoT Devices.	Dec '21 - Jun '22
	Power System and Smart Grid Lab , Indian Institute of Technology Gandhinagar, Gujarat, India <i>Undergraduate Research Intern</i> <ul style="list-style-type: none">Advisor: Prof. Naran M. PindoriyaConducted a project on "Harmonics in AC/DC Microgrid and Mitigation Techniques".	Jan '19 - Apr '19
HONORS AND AWARDS	NUS Research Scholarship, National University of Singapore	'23
	Prof. Eliathamby Ambikarajah Gold Medal to the field top of Electrical and Electronic Engineering, University of Jaffna	'23
	 Winner – Academia Category, IEEE SA Telehealth Virtual Pitch Competition	'22
	Best Innovative Product/ Project – University – Northern Province, Sri Lanka, SLASSCOM National Ingenuity Awards	'22
	Prof. Eliathamby Ambikairajah Award for the best performance 2 nd , 6 th Semesters, University of Jaffna	'18, '21
	Prof. S. Mahalingam Memorial Innovative Project Proposal Award, University of Jaffna	'20

PUBLICATIONS	<p>Unraveling the Missing Link in Low-power Communication: An Autodyning Receiver Architecture that Achieves a Long Range <i>P. Medaranga, R. Rajashekar, W. Yan, P. Dutta, A. Varshney</i> ACM MobiSys 2025 (To appear)</p> <p>Li-FiAR: Networking Augmented-Reality Devices through Visible Light <i>M. Shah, D. Shah, P. Medaranga, A. Varshney</i> ACM S3 Workshop, Mobicom 2024 [Paper]</p>
POSTER & DEMO ABSTRACTS	<p>Simplifying the Networking of Wireless Embedded Systems using a Large Language Model [Selected/presented for Student Research Competition (Graduate)] <i>P. Medaranga, D. Shah, S. V. Kandala, A. Varshney,</i> ACM Sigcomm 2024 [Paper]</p> <p>Demo: Light and Vibration Gesture Sensing with OTTER: Embedded Data Collection and Analysis Using LLMs <i>S. Waskito, K. J. Leow, P. Medaranga, T. Gupta, S. Chakrabarty, M. Gulati, A. Varshney,</i> ACM SenSys 2023 [Paper]</p> <p>OTTER: Simplifying Embedded Sensor Data Collection and Analysis Using LLMs <i>S. Waskito, K. J. Leow, P. Medaranga, T. Gupta, S. Chakrabarty, A. Varshney,</i> ACM Mobicom 2023 [Paper]</p> <p>Rethinking Embedded Sensor Data Processing and Analysis with Large Language Models <i>P. Medaranga, S. Waskito, L. Kunjun, K. J. Leow, S. Chakrabarty, A. Varshney,</i> ACM MobiSys 2023 [Paper]</p>
MEDIA APPEARANCES	<p>IEEE Standards Association – Re-Think Health Podcast Season 4 Joined as Guest Speaker for the Season 4 – Episode 3 “Getting a Hold of Chronic Conditions for Patients in Developing Regions” of the Re-Think Health Podcast Season 4 by IEEE Standards Association.</p> <p>IEEE Spectrum – “Wearable That Measures Vital Signs” Featured for discussing the development and impact of a low-cost, battery-powered wearable device designed to measure vital signs, carried out as final year undergraduate project.</p>
TEACHING EXPERIENCE	<p>School of Computing, NUS, Singapore <i>Teaching Assistant</i></p> <ul style="list-style-type: none"> • CS4222/5222 - Wireless Networking Spring '24 • CS4222/5222 - Wireless Networking Spring '25 <p>Department of Electrical & Electronic Engineering, UoJ, Sri Lanka <i>Academic Instructor</i></p> <ul style="list-style-type: none"> • EC9110 - Modern Mobile Communication Architecture and Applications Spring '23 • EC7090 - Communication Network Design Spring '23 • EC5010 - Digital Signal Processing Fall '22 • EC3011 - Electronics and Instrumentation Fall '22
PROFESSIONAL AND VOLUNTEER ENGAGEMENT	<p>Student Member, Association for Computing Machinery (ACM) '23 – Present</p> <p>Student Member, Institute of Electrical & Electronics Engineers (IEEE) '20 – Present</p> <p>Associate Member, Institution of Engineers Sri Lanka (IESL) '19 – Present</p> <p>Secretary, IEEE Robotics and Automation Society, UoJ Jul '21 – Aug '22</p> <p>Ambassador, Powering the Future Summit 2021 – IEEE PES YP Oct '21</p> <p>Assistant Secretary, Institution of Engineers, Sri Lanka – Young Members Section, UoJ '19 – '20</p> <p>Team Leader, Rotaract Club of Faculty of Engineering, UoJ '19</p>
COMPUTER SKILLS	<ul style="list-style-type: none"> • C/C++ (Embedded software development), Python, MATLAB, Altium (PCB Design)

REFERENCES

Prof. Ambuj Varshney,
Assistant Professor, School of Computing,
National University of Singapore, Singapore

Prof. M. K. Ahilan,
Head, Department of Electrical & Electronic Engineering,
Faculty of Engineering, University of Jaffna, Sri Lanka.

Dr. Kutila Gunasekera,
Senior Lecturer, Department of Computer Science & Engineering,
Faculty of Engineering, University of Moratuwa, Sri Lanka.

Eng. R. Valluvan,
Lecturer, Department of Electrical & Electronic Engineering,
Faculty of Engineering, University of Jaffna, Sri Lanka