Bhathiya Rathnayake

San Diego, CA | brm222@ucsd.edu | +1 (518) 596 5193 | Publications | LinkedIn | My Website

EDUCATION

University of California San Diego — **Jul 2022 –**
PhD in Intelligent Systems, Robotics, & Control, GPA: 3.85/4.0 — *San Diego, CA*

Rennselaer Polytechnic Institute — **Jan 2020 – May 2022**
MS in Computer & Systems Engineering, GPA: 3.89/4.0 — *Troy, NY*

University of Peradeniya — **Jan 2014 – Oct 2017**
BSc in Electrical & Electronic Engineering, GPA: 3.65/4.0 — *Sri Lanka*

TECHNOLOGIES

Control Systems: System Modeling, Linear & Non-linear Control, Adaptive Control, Model Predictive Control, Observers
Robotics: Reinforcement Learning, Optimization, State Estimation, SLAM, Motion Planning
Data Analysis: Probabilistic Modeling, Statistical Methods
Electrical Engineering: Analog Circuits, Power Electronics
Languages: Matlab/Simulink, Python, C++
Frameworks: TensorFlow, Keras, PyTorch, Scikit-learn

EXPERIENCE

Los Alamos National Laboratory — **Jun 2024 - Aug 2024**
Graduate Intern — Focus: Estimation and Control in Gas Pipeline Networks — *Los Alamos, NM*
- Developed observers and controllers for gas pipeline networks subject to uncertainties
- Simulated gas flow in pipelines to validate the developed control algorithms
- Documented results in a research paper submitted to American Control Conference (ACC) 2025

University of California San Diego — **Jul 2022 – Present**
Graduate Student Researcher — Focus: PDEs , Event-triggered Control, Traffic/Water Systems — *San Diego, CA*
- Invented periodic event-triggered and self-triggered control strategies for parabolic & hyperbolic PDEs with industrial applications in traffic control and water management in reservoirs
- Simulated traffic and water systems to validate the developed control algorithms
- Documented results in research articles published in IEEE Transactions on Automatic Control (IEEE TAC) & Automatica

Rensselaer Polytechnic Institute — **Apr 2020 - May 2022**
Graduate Research Student — Focus: PDEs, Event-triggered Control, 3D Printing — *Troy, NY*
- Developed event-triggered boundary control strategies for physics-based model of melting processes (Stefan problem) and reaction-diffusion processes with applications in 3D printing
- Documented results in research articles published in IEEE TAC, Automatica, & International Journal of Control

Sri Lanka Technological Campus — **Jan 2018 - Jul 2019**
Research Engineer — Focus: Hyperspectral Image Analysis — *Sri Lanka*
- Developed graph-based blind source separation algorithms for unmixing of hyperspectral images
- Documented results in a research article published in IEEE Transactions on Geoscience and Remote Sensing

University of Peradeniya — **Jan 2017 - Oct 2017**
Undergraduate Research Student — Focus: Robotics and Control — *Sri Lanka*
- Developed a 5-DOF underwater robotic vehicle (URV) and performed system modeling and parameter identification
- Designed MIMO sliding mode controllers to address trajectory tracking and path following control of the URV
- Documented results in a research paper published in an IEEE conference

SELECTED PUBLICATIONS

- **B. Rathnayake**, A. Zlotnik, S. Tokareva, and M. Diagne, "Setpoint tracking and disturbance attenuation for gas pipeline flow subject to uncertainties using backstepping," submitted to 2025 IEEE American Control Conference (ACC)
- **B. Rathnayake** and M. Diagne, "Observer-based periodic event-triggered and self-triggered boundary Control of a class of parabolic PDEs", IEEE Transactions on Automatic Control, 2024, 10.1109/TAC.2024.3419639
- **B. Rathnayake** and M. Diagne, "Observer-based event-triggered boundary control of the one-phase Stefan problem," International Journal of Control, 2024, https://doi.org/10.1080/00207179.2024.2313677
- **B. Rathnayake**, M. Diagne, and I. Karafyllis, "Sampled-data and event-triggered boundary control of a class of reaction-diffusion PDEs with collocated sensing and actuation", Automatica 137, 110026, 2022
- **B. Rathnayake**, M. Diagne, N. Espitia, and I. Karafyllis, "Observer-based event-triggered boundary control of a class of reaction-diffusion PDEs", IEEE Transactions on Automatic Control, vol. 67, no. 6, pp. 2905 – 2917, 2022