

EDUCATION

- **Doctor of Philosophy, Electrical and Computer Engineering** Sept 2023 – Present
University of Windsor, ON
- **Master of Applied Science, Electrical and Computer Engineering** May 2019 – Dec. 2021
University of Windsor, ON
- **Bachelor of Engineering, Electronics and Communication Engineering** Aug. 2014 – Apr. 2018
Anna University, India

EXPERIENCE

- **Doctoral Teaching and Research Assistant** Sept 2023 – Present
University of Windsor, ON
- **Research Assistant, Battery Management Systems Lab** Aug 2022 – Aug 2023
University of Windsor, ON
- **Master's Teaching and Research Assistant** May 2019 – Dec 2021
University of Windsor, ON

PUBLICATIONS

- **Journals:**

- Pillai, P., Desai, S., Sunil, S., Pattipati, K.R. and Balasingam, B., 2025. Improved Estimation of Open Circuit Voltage and Internal Resistance of a Battery Using Novel Voltage Observation Model. Authorea Preprints.
- Sunil, S., Pattipati, K.R. and Balasingam, B., 2025. Piecewise Linear Approximation of Battery Open-Circuit Voltage Characteristics Using Dynamic Programming. IEEE Transactions on Instrumentation and Measurement.
- Sunil, S., Mozaffari, S., Singh, R., Shahrrava, B. and Alirezaee, S., 2023. Feature-based occupancy map-merging for collaborative slam. Sensors, 23(6), p.3114.

- **Conferences:**

- Sundaresan, S., Sunil, S., Balasingam, B. and Pattipati, K.R., 2023, June. Joint Estimation of Open Circuit Voltage and Equivalent Circuit Model Parameters Using State-Space Model Optimization. In 2023 IEEE Transportation Electrification Conference & Expo (ITEC) (pp. 1-6). IEEE.
- Sunil, S., Sundaresan, S., Pillai, P. and Balasingam, B., 2023, June. Inverse characterization of open-circuit voltage for state-of-charge estimation of batteries. In 2023 IEEE Transportation Electrification Conference & Expo (ITEC) (pp. 1-6). IEEE.
- Sunil, S., Balasingam, B. and Pattipati, K.R., 2022, December. State-of-charge estimation of batteries using the extended Kalman filter: insights into performance analysis and filter tuning. In 2022 IEEE 1st Industrial Electronics Society Annual On-Line Conference (ONCON) (pp. 1-6). IEEE.
- Sunil, S., Mozaffari, S., Rajmeet, S., Shahrrava, B. and Alirezaee, S., 2022, December. Lidar-Based Cooperative SLAM with Different Parameters. In 2022 7th International Conference on Mechanical Engineering and Robotics Research (ICMERR) (pp. 82-87). IEEE.
- Sundaresan, S., Sunil, S., Balasingam, B. and Pattipati, K.R., 2022, December. Fast offline battery capacity estimation approach with performance bounds. In 2022 IEEE Electrical Power and Energy Conference (EPEC) (pp. 188-193). IEEE.
- Sunil, S., Sundaresan, S., Balasingam, B. and Pattipati, K.R., 2022, December. Novel Table-based Kalman Filter for State of Charge Estimation of Batteries. In 2022 IEEE Electrical Power and Energy Conference (EPEC) (pp. 200-205). IEEE.

- **Thesis:**

- **S. Sunil.** "Heterogeneous Collaborative Mapping for Autonomous Mobile Systems", *University of Windsor, Canada*, Jan. 2022.

CERTIFICATION

- Lithium Battery Safety, Lion Technology Inc. Oct. 2023

EXTRACURRICULAR

- Department Intern (Engineers Canada accreditation), University of Windsor Oct. 2021 – Dec. 2021
- Sports Statistician, Windsor Lancers Football Nov. 2020 – Nov. 2021
- Residence Desk Services Assistant, University of Windsor Sep. 2019 – Apr. 2020
- Convocation Assistant, University of Windsor Oct. 2019
- Secretary, University of Windsor Indian Students Club Sep. 2019 – Sep. 2021