

Skieler R. Capezza		
srcapezz@ncsu.edu	Raleigh, NC	(910)431-7591

Objective

Looking for an internship position focusing on battery and energy management research, control systems, or robotics

- Spring 2026 – Part time – Raleigh, NC / Remote
- Summer 2026 – Internship (Full-time) – Available to relocate

Education

North Carolina State University, Raleigh, NC

Ph.D. in Electrical Engineering, May 2027

- Advisor: Dr. Mo-Yuen Chow

M.S in Electrical Engineering, May 2022

GPA: 4.00/4.00

B.S. in Computer Engineering, May 2021

GPA: 3.93/4.00

B.S. in Electrical Engineering, May 2021

GPA: 3.93/4.00

Technical Skills

Control Systems

- Adaptive observers, Extended / Unscented Kalman Filters, Parameter Estimation, Neural Networks

Programming

- MATLAB, Python, C, Java, Excel (VBA)

Simulation and Modeling

- Simscape/Simulink, PSpice, OnShape, Fusion360

Embedded Systems

- MSP430, FRDM-KL25Z, ESP32, Arduino

Research Interest and Current Focus

Battery State Estimation

- State of Charge, State of Health, and State of Power Estimation
- Adaptive observer-based state estimation

Battery Fault Detection and Diagnosis

- Electric Circuit Model (ECM) parameter estimation for fault classification

Distributed Control for Energy Management Systems

- Consensus networks, economic dispatch, nonlinear convex optimization

Graduate Papers

A. Joshi, **S. Capezza**, A. Alhaji, and M.-Y. Chow, “Survey on AI and Machine Learning Techniques for Microgrid Energy Management Systems,” *IEEE/CAA Journal of Automatica Sinica*, vol. 10, no. 7, pp. 1513–1529, Jul. 2023

S. Capezza, A. Joshi, and M.-Y. Chow, “Hierarchical Distributed Consensus Based Economic Dispatch of Distributed Energy Resources (DERs) for Networked Microgrids,” in *2023 IEEE 3rd International Conference on Industrial Electronics for Sustainable Energy Systems (IESES)*, Jul. 2023, pp. 1–6.

S. Capezza, A. Joshi, and M. Chow, “Weighted Hierarchical Consensus based Economic Dispatch Utilizing Cluster Size Estimation for Networked Microgrids,” in *IECON 2023- 49th Annual Conference of the IEEE Industrial Electronics Society*, Oct. 2023, pp. 01–06

S. N. Adasah, Z. Wang, S. Hu, **S. Capezza**, J. Shao, and M.-Y. Chow, “Review of Fault Diagnosis based Protection Mechanisms for Battery Energy Storage Systems,” in *2024 IEEE 33rd International Symposium on Industrial Electronics (ISIE)*, Jun. 2024, pp. 1–6.

A. Joshi, **S. Capezza**, and M.-Y. Chow, “Strategic Leader Selection and Cluster Formation in Hierarchical Networked Microgrids,” in *2024 IEEE Power & Energy Society General Meeting (PESGM)*, Jul. 2024, pp. 1–5.

A. ALhaji, **S. Capezza**, and M.-Y. Chow, “A Distributed Consensus Approach for Power and Water Co-Generation in Microgrids,” in *IECON 2024 - 50th Annual Conference of the IEEE Industrial Electronics Society*, Chicago, IL, USA: IEEE, Nov. 2024, pp. 1–6.

A. Joshi, **S. Capezza**, A. ALhaji, and M.-Y. Chow, “Hierarchical Distributed Gossip Consensus Based Economic Dispatch in Networked Microgrids,” in *IECON 2024 - 50th Annual Conference of the IEEE Industrial Electronics Society*, Chicago, IL, USA: IEEE, Nov. 2024, pp. 1–6

S. Capezza and M.-Y. Chow, “Robust Real-Time SOH Estimation via Online Identification of Temperature and SOC Dependent Battery Resistance Model,” in *IECON 2025 – 51st Annual Conference of the IEEE Industrial Electronics Society*, Madrid, Spain: IEEE, Oct. 2025

Relevant Courses

Advanced Feedback Control, Modern Control Theory, Introduction to Linear Programming, Pattern Recognition, Autonomous Robotic Systems, Industrial Robotic Systems, Mechatronics, Neural Networks, Embedded Systems Architectures, Computer Systems Programming

Work Experience

Project Engineering Intern, Siemens, Wendell, NC

May 2025 – August 2025

- Reviewed and became familiar with IEEE/ANSI standards for metal-enclosed and metal-clad medium voltage switchgear.
- Created standard operating procedure documents for Project Engineering (PE) job tasks.
- Learned about the role of instrument transformers, relays, and vacuum circuit interrupters in switchgear.
- Oversaw the design of 10 medium voltage switchgear

Teaching Assistant – ECE 560 – Embedded Systems Architectures

August 2024 – May 2025, 20 hrs./week

- Modifying shield components for a FRDM-KL25Z development board
- Grading homework and project submissions

Instructor – ECE 456 – Mechatronics, NCSU, Raleigh, NC

August 2022 – December 2022, August 2023 – December 2023, 20 hrs./week

- Lectured on the fundamentals of sensors, signal conditioning, actuators, system modeling, and control of mechatronic systems.
- Wrote and graded test and exam questions related to course materials.

Teaching Assistant – ECE 516 – Modern Control Systems, NCSU, Raleigh, NC

January 2022 – May 2022, 12.5 hrs./week

- Graded homework and exam questions.
- Created and evaluated exam questions with supervision from the course professor.
- Held semi-weekly office hours.

Teaching Assistant – ECE 556 – Mechatronics, NCSU, Raleigh, NC

August 2021 – December 2021, 20 hrs./week

- Held bi-weekly lab sessions and prepared lab materials.
- Graded homework, exams, labs, and projects.
- Created and evaluated exam questions with supervision from the course professor.
- Held semi-weekly office hours.

RF Design Engineer COOP, Longent LLC, Raleigh, NC

May 2018 – May 2020, 40 hrs./week

- Designed over 60 public safety and 4 commercial distributed antenna systems in collaboration with other co-op students and engineers.
- Created over 50 closeout documents that gave an overview of each project after installation and verification of a working system.
- Traveled to job sites, both local and out-of-state, to conduct system verification tests.

Academic Project Experience (Undergraduate and Masters)

Pattern Recognition

- Implemented and compared the performance of Mahalanobis distance classifier and a single layer perception with backpropagation for non-separable multi-class identification of penguin species.

Senior Design – Nautiloid Inspired Robot

- Reusable, low-power underwater robot to collect data on ocean water conditions.

Embedded Systems

- Built overlapping, single-thread, microsecond virtual timers using a FRDM-KL25Z
- High brightness LED control with FRDM-KL25Z

Control Systems

- Teleoperated and autonomous line following tank (RC car size) using a MSP430, written in C.
- PID controller for line following (IR sensors) and collision avoidance (ultrasonic sensor) on an EV3, written in MATLAB.
- LQR based optimal control for an inverted pendulum.

Neural Networks

- Terrain identification from gyroscope data with an LSTM
- Cotton Fiber Tip segmentation with YOLOv3

Leadership, Activities, and Hobbies

HKN Beta Eta Chapter – Recording Secretary (Fall 2020 – Spring 2021)

- Mentored undergraduate students in electrical engineering courses
- Helped organize the Alumni Panel event held for HKN members at NCSU during Fall 2020.

IEEE ENCS – IES Chapter Chair (February 2022 - Present)

- Organize technical and social meetings for ENCS IES members.
- Act as a voting member of the ENCS Executive Committee.