

EDUCATION

Massachusetts Institute of Technology, Cambridge, Massachusetts USA

- Pursuing a Ph.D. in Mechanical Engineering under Dr. Kostya Turitsyn & Dr. Luca Daniel
- Research focused on Power System Stability and Forced Oscillation Tracking
- Cumulative GPA (after 5 semesters) of 4.8 on a 5.0 Scale
- **Relevant PhD Courses:** State Space Controls; Classical Controls; Nonlinear Controls; Mechanical Dynamics; Nonlinear Dynamics; Stochastic Processes; Optimization Methods; Advanced Power System Dynamics and Analysis; Smart Grid Fundamentals

University of Vermont, Burlington, Vermont USA

- M.S. in Electrical Engineering; Research focused on Voltage Stability with Dr. Paul Hines
- B.S. in Electrical Engineering; Minor in Mathematics: Graduated *Magna Cum Laude* in 2015; Cumulative GPA of 3.94 on 4.0 Scale
- **Relevant MS/BS Courses:** System Theory; Power System Analysis; Electrical Energy Systems; Smart Grid; Solid State Physics; Transmission Lines; Advanced Engineering Mathematics; Electromagnetic Field Theory; Digital Signal Processing; Capstone Engineering Design; Electronics; Data Science Visualization

Champlain Valley Union High School, Hinesburg, Vermont USA

- Graduated in 2011 with 18 College Credits; Cumulative GPA of 3.93 on 4.0 Scale

RELEVANT EMPLOYMENT HISTORY

Graduate Research Assistant (UVM and MIT)

Winter 2014 to Date

- Worked as a research assistant in Dr. Paul Hines' lab
- Worked as a research assistant in Dr. Kostya Turitsyn's research group

Graduate Resident Tutor (GRT)

Fall of 2017 to Date

- Live in an undergraduate dorm at MIT and work as a graduate Resident Advisor (RA)
- Responsible for community building and acting as a mental health resource for 40 students

Teaching Assistant

Spring 2014 to 2016

- Introduction to Electrical Energy Systems; ran labs and graded reports (15 & 10 students)
- Linear Circuits; ran labs and graded reports (30 students)

LORD MicroStrain (Wireless Sensing Department)

Summer 2013 and 2014

- Intern; completed wireless transmission testing; built a data packet parsing project in LabVIEW; sensor prototype assembly; updated calibration software

Miscellaneous

2010 through 2013

- UVM Resident Advisor; Chevalier Well Drilling; Liquid Measurement Systems intern

RESEARCH, PROJECTS, & PUBLICATIONS

Detection Methods for Forced Oscillations

Fall 2016 to Date

- Graduate Research Assistant for Dr. Kostya Turitsyn; investigating methods for tracing forced oscillations in transmission networks

- **Resulting Publications:**

- S. Chevalier, P. Vorobev and K. Turitsyn, "A Bayesian Approach to Forced Oscillation Source Location Given Uncertain Generator Parameters," in *IEEE Transactions on Power Systems*.
- S. C. Chevalier, P. Vorobev and K. Turitsyn, "Using Effective Generator Impedance for Forced Oscillation Source Location," in *IEEE Transactions on Power Systems*, vol. 33, no. 6, pp. 6264-6277, Nov. 2018.
- S. Chevalier, P. Vorobev, K. Turitsyn, B. Wang, and S. Maslennikov "Using Passivity Theory to Interpret the Dissipating Energy Flow Method". Submitted to IEEE PESGM 2019.

Statistical Warning Signs of Voltage Stability

2015 to 2016

- Graduate Research Assistant for Dr. Paul Hines; investigating system wide voltage stability of power systems through dynamical simulation and analytical derivations
- **Resulting Publications:**
 - S. C. Chevalier and P. D. H. Hines, "Identifying system-wide early warning signs of instability in stochastic power systems," *2016 IEEE Power and Energy Society General Meeting (PESGM)*, Boston, MA, 2016, pp. 1-5.
 - S. C. Chevalier and P. D. H. Hines, "Mitigating the Risk of Voltage Collapse Using Statistical Measures From PMU Data," in *IEEE Transactions on Power Systems*, vol. 34, no. 1, pp. 120-128, Jan. 2019.

DC to AC Inverter Circuit Project

Spring 2015

- Designed and built a 12VDC to 120VAC (RMS) 100W true sine wave Inverter Circuit for an advanced circuit design course
- Circuit provided regulated 120V power for a 100W load; device sampled the output voltage and printed a true RMS voltage to a digital seven segment display screen

Wireless Cross-Country Skiing Force Measurement System

2014 to 2015

- Interdisciplinary Senior Design Project; Designed, built and tested a bio-feedback device for cross country skiing athletes; created custom circuits, PCBs, and software
- Device measures force applied to poles and acceleration of the athletes; provides real-time feedback for performance enhancement and data aggregation for post workout analysis

Real Time Demand Response

2013 to 2014

- Provided research assistance in a DOE funded demand response study; worked with industry partners to collect and analyze data from thousands of customers
- Listed as a technical assistant in the project's final report: "Load Impact Analysis of Green Mountain Power Critical Events, 2012 and 2013", SmartGrid.gov

SKILLS & EXPERIENCES

Computational Tools and Relevant Courses

- Proficient (intermediate to expert) in PowerWorld, PSAT, MATPower, LabVIEW, MATLAB, Python, PSpice, Arduino, Julia, C, Latex, and MS Office

Track and Field

- Four-year member of UVM Varsity Track Team (Pole Vault); elected Captain Senior Year
- Volunteer Coach at CVU High School (3 years); Head Coach at Mansfield Pole Vault Club

Leadership Roles

- Co-Organizer of MIT's Electricity Student Research Group (ESRG)
- Served on School of Engineering lecturer search committee with other Faculty members
- Served for one year as the Co-Program Director for a 20-person Engineering based Residential Learning Community at UVM; chose applicants, hosted weekly meetings, planned monthly events
- Acted as a student group leader for Chi Alpha student ministry at UVM for three years

HONORS & AWARDS

- 2015 America East Presidential Scholar Recipient
- Tau Beta Pi Honor Society Inductee
- 2015 Senior Electrical Engineering Award: Atwater-Kent Award for Excellence of Judgment and Understanding of the Principles of Electrical Engineering
- 2014 American Public Power Association Scholarship
- 2013 and 2014 Recipient of the Richard A. Swenson Endowed Scholarship
- 2013 Sophomore Electrical Engineering Award: Excellence and Greatest Promise
- 2011 through 2014 recipient of the Vermont Scholar's Award Scholarship