Jonas A. Kersulis

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Education

PhD in Electrical Engineering: Systems *2020*

University of Michigan, Advised by Professor Ian Hiskens

- Developed optimization algorithm for renewable energy integration
- ARPA-E GRID DATA initiative: designed grid structure and time series data metrics
- Interned at Los Alamos National Lab, Argonne National Lab

Bachelor of Science in Electrical Engineering *2013*

Univ. of Missouri—St. Louis and Washington Univ. in St. Louis Joint Engineering Program

- Student Advisory Board member, 2010-2013
- 4.0 GPA

Teaching and Work Experience

Research Associate: Interactive Teaching Material Development *2020*

- Develop interactive materials to teach machine learning in a hands-on setting
- Continually improve curriculum and interactive platform based on student feedback

GSI: Computational Data Science, Prof. Raj Nadakuditi *2015-16, '18-19*

- Developed interactive notebooks for teaching data science (deep nets, SVD, clustering, latent semantic indexing, PCA/ICA, regularization, and other topics)
- Implemented algorithms in Python, MATLAB, and Julia

GSI: Introduction to Electronic Circuits, Prof. Cynthia Finelli *Fall 2019*

- Managed 5-person GSI team for 200-student class, ran lab section

GSI: Introduction to Digital Signal Processing , Prof. Mert Pilanci *Winter 2018*

- Ran weekly discussion section for 50-student course, graded term project

GSI: Introduction to Control Systems, Prof. Necmiye Ozay *Winter 2017*

- Ran two weekly discussion sections for 85-student course, supervised lab

Sound & Vibration Lab Technician, Nidec Motor Corporation *2012-2013*

- Tested fractional horsepower induction motors
- Used VBA to automate the process of recording, processing, and reporting test data
- Sent reports to factory workers, engineers, sales managers, and executives
- Performed on-site assessment of client RMA request of 1000 motors

Student Teaching Assistant, UM-St. Louis Math Technology Learning Center *2010-2011*

- Hired by Calculus II professor based on course performance

Reader & Tutor, UM-St. Louis Disability Access Services *2010-2011*

- Tutored, read for, and proctored two students with blindness

Skills

- Power system modeling and optimization algorithm design
- Data science: practical implementation and deep understanding of classifiers, data manipulations and decompositions, and neural networks
- Communication: extensive presentation and teaching experience
- Visualization: novel & interactive visualizations of systems and processes
- Document creation: highly effective with LaTeX, Word, PowerPoint, and Excel
- Python: NumPy, SciPy, NetworkX, Jupyter notebook workflow
- Git: collaborative version control workflow
- Web design: web authoring and editing with HTML, CSS, JavaScript, and Jekyll

Publications and Presentations

IEEE Transactions on Power Systems
Efficient Computation of Minimal Wind Deviations that Induce Temporal Line Overloading — *Submitted 2020*
- Co-author: Ian Hiskens

Power Systems Computation Conference 2018 — *Summer 2018*
Topological Graph Metrics for Detecting Grid Anomalies and Improving Algorithms
- Co-authors: Ian Hiskens, Carleton Coffrin, Daniel Molzahn

IEEE PES Innovative Smart Grid Technologies – Asia 2016 Conference — *2016*
Renewable Voltage Regulation and the Transformer Tapping Trade-off
- Co-author: Dr. Ian Hiskens

IEEE PowerTech Eindhoven 2015 Conference — *2015*
Temperature-based Instanton Analysis: Identifying Vulnerability in Transmission Networks
- Co-authors: Ian Hiskens, Michael Chertkov, Scott Backhaus, Daniel Bienstock

Grid Science Winter School — *2015*
Introduction to Julia and IJulia: Optimization tools and a platform for numerical experiments
- Hosted interactive session with Miles Lubin (MIT) and Yury Dvorkin (U. of Washington)

Grid Science Winter School Poster Session — *2015*
Approximate Current Instanton Analysis:
Detecting Vulnerability in the Power Grid

University of Michigan Engineering Graduate Symposium Poster Session — *2014*
Approximate Current Instanton Analysis:
Detecting Vulnerability in the Power Grid

Los Alamos National Lab Grid Science Student Seminar — *2014*
Instanton Analysis with Non-flat Voltage Profiles
and Current Magnitude Constraints
- Host: Dr. Michael Chertkov

Volunteer Experience

Board Member, Inter-Cooperative Council at Ann Arbor — *2019*
- Helped make policy for a cooperative organization with a $2M budget
- Represented 150-member student housing cooperative
- Redesigned KPIs and data flow as member of Operations Committee

Planning Committee Member, Michigan Engineering Graduate Symposium — *2017, 2018*
- Recruited judges, worked on logistics, edited abstracts
- Designed spreadsheet to score event and rank participants

H.I.S. K.I.D.S. Counselor-In-Training, Counselor, Group Leader — *2008-2013*
- Weeklong summer camp for children with cancer and their siblings

Awards and Honors

Michigan Eng. Graduate Symposium 1st Place in Power and Energy — *2014, 2016*
University of Michigan Academic Fellowship — *2013-2014*
UM—St. Louis Chancellor's Scholarship — *2009-2013*
Boeing Corporation Engineering Scholarship — *2012-2013*
Citizens for Engineering Scholarship — *2010-2011*
Engineering Alumni Association Scholarship — *2010-2011*