# Jonas A. Kersulis

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## Education

**PhD Candidate** *2013 - present*

*University of Michigan Electrical Engineering: Systems*

- Advisor: Dr. Ian Hiskens

**Bachelor of Science in Electrical Engineering** *2009-2013*

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

- GPA: 4.0

## Work and Teaching Experience

**Graduate Student Instructor, EECS 351** *Winter 2018*

*Introduction to Digital Signal Processing , Dr. Mert Pilanci*

- Ran weekly discussion section for 50-student course
- Gave substitute lecture
- Graded term project

**Graduate Student Instructor, EECS 460** *Winter 2017*

*Introduction to Control Systems, Dr. Necmiye Ozay*

- Ran two weekly discussion sections for 85-student course
- Supervised magnetic levitation laboratory

**Graduate Student Instructor, EECS 551** *2015, '16, '18*

*Matrix Methods for Signal Processing, Dr. Raj Nadakuditi*

- Helped develop interactive textbook and visualizations of core concepts (e.g. the SVD)

**Part-Time Sound & Vibration Lab Engineer** *2012-2013*

*Nidec Motor Corporation*

- Tested line frequency and variable speed induction motors
- Recorded, processed, and archived sound and vibration data
- Sent Excel reports to factory workers, engineers, sales managers, and executives

**Student Teaching Assistant** *2010-2011*

*University of Missouri—St. Louis Math Technology Learning Center*

- Hired by Calculus II professor based on class performance

**Reader & Tutor for students with blindness** *2010-2011*

*University of Missouri—St. Louis Office of Disability Access Services*

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

## Publications and Presentations

**Power Systems Computation Conference 2018 (accepted)** *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 include Dr. Ian Hiskens and Dr. Michael Chertkov of LANL

**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)



*(section continues)*

**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

**UM—St. Louis Undergraduate Research Symposium (URS) Poster Session** *2011*
*New York City Blackout of 1977: Life in the Dark*
- Advisor: Dr. Robert Wilson

## 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*

## Skills

*Programming languages*
- Python: technical computing, NumPy, SciPy, Matplotlib visualization, Jupyter notebook workflow
- Julia: language structure, technical computing, registered package author
- MATLAB: general technical computation, visualization
- HTML, CSS, JavaScript: basic web design
- D3.js: graph layout, algorithm visualization via Sankey (alluvial) diagrams
- Visual Basic for Applications: automated charts, graphical dashboards, interactive checklists

*Data analysis and presentation*
- Analysis, interpretation, and visual and tabular presentation of large datasets
- Graph analysis and visualization
- Algorithm visualization
- Data-ink maximization, graphical revision, and viewing architecture techniques

## Volunteer Experience

**Planning Committee Member** *2017*
*University of Michigan Engineering Graduate Symposium*
- Sat on Judge Recruiting and Editing & Logistics committees

**UMSL Joint Engineering Program Student Advisory Board Member** *2010-2013*
- Acted as liaison between student body and departmental administration

**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

**Origami Booth Volunteer** *2008-2012*
*Missouri Botanical Garden Japanese Festival*
- Taught origami to passersby as part of origami booth team