Sarah E Howerter

Masters in Civil and Environmental Engineering Student

Contact
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EDUCATION

- **University of Vermont,** Burlington, VT — *Currently pursuing Masters in Civil and Environmental Engineering*

2017 - Present

Advisor: Dr. Lisa Aultman-Hall
Focusing in Transportation Systems and Modeling.

Certificate of Graduate Study: Complex Systems at the Vermont Complex Systems Center

Masters Thesis Topic: Modeling Electric Vehicle Energy Demand and Regional Dispatch for New England and New York State

Courses: Environmental Systems Engineering, Transportation Systems Engineering, Principles of Complex Systems, Transportation Modeling and Planning, Complex Networks, Statistical Methods, Modeling Complex Systems, Convex Optimization, Data Science, Smart Grid, Data Ethics (audited)

- **City College of San Francisco,** San Francisco, CA — *Continuing Education & Masters Prerequisites*

2013 - 2016

Focused on math, science, and engineering studies to prepare for graduate studies in civil engineering.

Courses: Trigonometry, Calculus I, II, & III, Differential Equations, Introductory Physics, Classical Mechanics for Scientists and Engineers, Electricity & Magnetism for Scientists and Engineers, Intro To Engineering & Technology Lab, Intro to Engineering: The Profession, Engineering Software Tools and Design, Engineering Mechanics- Statics, Engineering Drawing and Manufacturing, Welding Processes, Intro to Programming C++, Intro to Chemical Principles, Cosmic Evolution, Observational Astronomy, Solar System

- **Savannah College of Art & Design,** Savannah & Atlanta, GA — *Bachelors of Fine Art in Printmaking*

2008 - 2011

Completed senior thesis which consisted of a written thesis and public art show of works in printmaking, installation, and book arts.
https://cargocollective.com/seh

CONFERENCES

- Transportation Research Board Annual Meeting 2018 - Attended
- Transportation Research Board Annual Meeting 2019 - Presented two research projects at survey methods and bicycle research poster sessions
- Symposium on Complexity in Health and Wellness 2018 - Attended

SKILLS

Programming: Python, LaTeX, R, Julia, Matlab, C++, Arduino, VBA, & HTML

Software: TransCAD, Github, SQlite, Excel, SPSS, Adobe CS, MS Office Suite

Research: Data collection, analysis, & organization, Data visualization, Statistical Modeling, NLP, Choice Modeling, Transportation Modeling Methods, Network Modeling, Analysis and Structure Detection

Engineering: Transportation Engineering, Traffic Flow Theory, Traffic Assignment, Facility Design, Optimization, Technical Drawing & Blueprint Reading, Survey Methods and Design

Professional Communication, Management, Public Speaking, and Customer Service experience

AWARDS AND HONORS

CH2M Hill Engineering Firm Scholarship Recipient Awarded while a student at CCSF in 2014 for demonstrated enthusiasm for science and engineering in both academic and extracurricular activities.

CCSF Math Department Scholarship Nominated for the department scholarship for noteworthy academic performance.

SCAD Scholarship Awarded for portfolio submission.

SCAD Honors Scholarship for academic and artistic merits.

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SELECTED WORK EXPERIENCE

- **The University of Vermont,** Burlington, VT — *Graduate Research Assistant at the Transportation Research Center*
  Ongoing
  Worked on multiple research projects under Lisa Aultman-Hall including looking at the influence of social network geography on long-distance travel behavior and the analysis of bicyclist race and ethnicity.
- **The Outdoor Gear Exchange**, Burlington, VT — *Inventory Control Specialist*
  2016 - 2018
  Promoted from floor position after first few months to work in a small specialized team to ensure the accuracy of the inventory at the Outdoor Gear Exchange both in the physical realm and the database. Data management work in Excel and POS system as well as development and fixing of interdepartmental programs in Excel VBA.
- **Ornot Bike,** San Francisco, CA — *Administrative Assistant*
  2015 - 2016
  Worked as primary employee to small bike apparel company owner/designer. Duties included online shop administration, customer communications and warranty procedures, and management/creation of web media and content, as well as customer accounting.

Additional previous employment available upon request.

RESEARCH & PROJECTS

- ***Exploring the Influence of Social Network Geography on Long-distance Travel Behavior -*** Presented as a poster at TRB Annual Meeting 2019 and at the UVM Student Research Conference in Spring 2018. Worked primarily with Lisa Aultman-Hall.
- ***Analysis of Bicyclist Race and Ethnicity from Eight Travel Surveys in the United States*** - Presented as a poster at TRB Annual Meeting 2019. Worked with Dillon Fitch from UC Davis and Lisa Aultman-Hall at the UVM Transportation Research Center 2018.
- ***Optimizing All-Day Electric Vehicle Charging Schedules Given Charging Infrastructure Scenarios and Travel Pattern Constraints*** - Final project for Convex Optimization course with written report and presentation. Course instructor: Mads Almassalkhi
- ***Defining Type of Cyclist based on Travel and Activity Patterns -*** Additional graduate research project for Transportation Modeling course, presented by Jim Sullivan at the NHTS Conference 2018. Course instructor: Jim Sullivan
- ***Changes in Shortest Paths for Bike/Pedestrian Travel Across I-89 Pre/Post Proposed New Bridge Construction*** - Final TransCAD project for Transportation Modeling course with written report. Course instructor: Jim Sullivan
- ***Investigating the hedonometer.org macrotrend via sentiment trends in the news over 9 years*** - Final project for Principles of Complex Systems course with written report and oral presentation. Course instructor: Peter Sheridan Dodds
- ***Ratiometrics of Twitter*** - Final project for Complex Networks course with written report and oral presentation. Course instructor: Peter Sheridan Dodds
- ***Comparison of voting systems in a complex opinion space -*** Final project for Modeling Complex Systems course with written report. Course instructor: Laurent Hébert-Dufresne
- ***Vehicular interaction and movement for simple traffic configurations*** -Project for Modeling Complex Systems course with written report and oral presentation. Course instructor: Laurent Hébert-Dufresne
- ***Predicting Future Electric Vehicle Charging Infrastructure Placement*** - Final project for Data Science course with written report and presentation. Course instructor: James Bagrow

Sample code or writing can be provided upon request.

ORGANIZATION & GROUP PARTICIPATION / MEMBERSHIP

Institute of Transportation Engineers, Young Professionals in Transportation, Complex Systems Center Computational Storylab Research Group, Transportation Research Center Combined Bike Research Group, Friend of Transportation Research Board Standing Committees on Visualization in Transportation, Transportation Network Modeling, Transportation Intelligent Transportation Systems, and Environmental Justice in Transportation.