MITCHELL K. ROBINSON, MS, EIT

Transportation Research Center
The University of Vermont, 25 Colchester Ave, Mansfield House, Burlington, VT 05405
Mitchell.Robinson@uvm.edu

Research scientist with a background in water resources, air quality and transportation. Analytical problem solver, proficient across a variety of open source (R, Python) and licensed software platforms (MATLAB, ArcGIS, JMP) for data management and analysis. Highly detail oriented with a proven ability for creating solutions to complex problems.

RELEVANT EXPERIENCE

TRANSPORTATION RESEARCH CENTER (UVM), Burlington, VT 9/2018 – Present

Research Scientist

- Lead and supporting analyst for a variety of transportation related projects related to travel equity and accessibility, long-distance travel behavior, and emissions including greenhouse gases and criteria pollutants.
- Developed an "instantaneous hybridization factor" for modeling emissions from hybrid powertrain metrics; performed various statistical analyses using OLS and elastic net models on carbon emissions and criteria pollutants for hybrid and conventional vehicles.
- Developed a novel public transit fare calculator for 7 major metro regions to create a "Transit Accessibility and Equity Dashboard" as part of a multi-disciplinary team.
- Survey development in QUALTRICS to assess UAV applications across various agencies and organizations for disaster response.
- Created an application to estimate costs associated with winter road maintenance using historical trends in weather data, roadway grip loss metrics and associated costs.
- Utilized LEHD jobs data to create a unique accessibility metric for assessing equitability in long distance travel, accounting for socioeconomics and spatial auto-correlation using mapping techniques in R and ArcGIS Pro.
- Developed methods to tabulate roadway link volumes from survey participant trip diaries and network path files (using R) and map in both R and ArcGIS Pro.
- Performed PM2.5 dispersion modeling for subregions encompassing the greater Atlanta metro region (AERMOD) to quantify regional proportions of daily roadway PM2.5 emissions and exposures (Python, ArcGIS Pro, R).
- Personal Project: Created R program to automatically download, compile and process COVID-19 data from the Vermont Open Geodata Portal, calculating and mapping new cases and case rates for demographic subsets, by county.

UNIVERSITY OF VERMONT, Burlington, VT 7/2008 – 7/2011

Graduate Research Assistant, Department of Civil and Environmental Engineering

- Designed, fabricated and assembled to "Total On-board Tailpipe Emissions Measurement System".
- Established protocols for time alignment of data accounting for static and dynamic temporal measurement lag.
- Analyzed over 400,000 data points utilizing various statistical approaches and software packages.
- Developed mapping protocols for vehicle emissions in ArcGIS.
- Published multiple peer-reviewed papers, technical reports and conference proceedings and presented at national research conferences in both poster and oral formats.

SUNY COLLEGE OF ENVIRONMENTAL SCIENCE AND FORESTRY, Syracuse, NY 5/2007 – 5/2008

Undergraduate Research Assistant, Department of Environmental Engineering

- Utilized NCDC online inventory and Lander CRN climate data to obtain precipitation data for analysis in ArcGIS.
- Independently developed step-by-step procedures to validate a model capable of predicting water table elevations using precipitation and river gage data.

EDUCATION

UNIVERSITY OF VERMONT, Burlington, VT 5/2011

Master of Science, Environmental Engineering

- *Thesis:* Second-by-Second On-Board Real-World Particle Number Emissions for Comparable Conventional and Hybrid-Electric Gasoline Vehicles in a City Driving Environment

STATE UNIVERSITY OF NEW YORK 5/2008
COLLEGE OF ENVIRONMENTAL SCIENCE AND FORESTRY, Syracuse, NY

Bachelor of Science, Environmental Resources Engineering – Focus on Water Resources

EAC – ABET Accredited Program *(Passed FE/EIT exam April 12, 2008*)
NAUI Open Water SCUBA Certified (Certified July 2009)