John Sherwood

(224) 558 3844
jgsherw@clemson.edu

Education

Clemson University - Clemson, South Carolina
Doctor of Philosophy in Environmental Engineering and Science *May 2020*
Leadership roles & Achievements:

- GPA: 4.0 / 4.0
- NSF Graduate Research Fellow
- Graduate Student Government Senator *Fall 2016 – Present*
- Clemson Sustainability Taskforce Member *Fall 2015 – Present*

Calvin College - Grand Rapids, Michigan
Bachelor of Science in Engineering, International Mechanical Concentration *May 2015*
Leadership roles & Achievements:

- GPA: 3.6 / 4.0 with Honors; GRE score: 162 / 162 / 5
- Vice President of American Society of Mechanical Engineers *Fall 2013 – Spring 2015*
- Senior Advisor of Engineers Without Borders *Fall 2011 – Spring 2015*

Graduate Coursework

Intro to Stochastic Models	Environmental Systems Analysis	Energy Economics
Data Analysis	Environmental Economics	Game Theory
Engineering Education	Environmental Chemistry	Infrastructure Systems

Relevant Undergraduate Coursework

Intro to Big Data	Sustainable Energy Systems Design	Academic Writing
Control Systems	Thermal-fluid Sciences I, II, III & IV	Machine Design

Work Experience

Graduate Research Assistant – Clemson University, Clemson, South Carolina *Sept 2015 – Present*

- Extended and applied an Input-Output Lifecycle Assessment model to study food, energy, and water requirements of 381 metropolitan areas and their corresponding GHG emissions
- Ported an agent-based model to a computing cluster, utilized 8,000 computing hours, and analyzed the model output using a combination of R, Alteryx, and Tableau
- Wrote technical documentation for the above projects, resulting in two manuscripts published in academic journals
- Developed & taught college-wide data visualization workshops using Tableau
- Assisted adviser in tasks including article peer review, undergraduate course design, lecturing, and advocating for sustainability within the Clemson community

Graduate Research Aide – Argonne National Laboratory, Argonne, Illinois *May, 2017 – August 2017*

- Worked in Global Security Sciences Division as computational modeler & data analyst
- Developed code to implement Active Subspaces parameter reduction technique
- Implemented and tested HPC code using EMEWS to efficiently run parameter sweeps
- Analyzed 50,000+ Agent-Based Model simulations and 12+ GB of output data to reduce input parameters from 212 to just 2
- Performed sensitivity analysis and model calibration to determine best-fit input parameters

Senior Design Project Team Member – Calvin College, Grand Rapids, Michigan *Sept 2014 – May 2015*

- Designed a hydraulic cylinder test apparatus for local company's quality control department capable of testing multiple points of failure on up to 6 inch bore, 6 foot long cylinders
- Responsible for frame design, fluid flow analysis, control system design through LabVIEW, and electrical system design including power supply, switches, sensors, and data acquisition

Calvin Energy Recovery Fund Intern – Calvin College, Grand Rapids, Michigan *Jan 2014 – May 2015*

- Presented seminars regarding sustainability and green revolving funds at Calvin, including discussion of various energy efficiency projects carried out by the energy recovery fund
- Designed, implemented, and monitored energy efficiency projects ranging from low-flow showerheads to LED lighting resulting in saving 600,000 gallons of water and 700,000 kWh
- Created an interactive college-wide sustainability dashboard to quantitatively showcase sustainability related efforts across campus
- Upgraded data collection Excel files to Access database for automated data processing

Engineering Teacher's Assistant – Calvin College, Grand Rapids, Michigan *Sept 2013 – May 2015*

- Taught sophomore students through weekly help sessions for thermodynamics classes
- Assisted with set-up, execution, and grading of various lab experiments

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Publications

John Sherwood, Raeanne Clabeaux, & Michael Carbajales-Dale. (2017). "An Extended Environmental Input-Output Lifecycle Assessment Model to Study the Urban Food-Energy-Water Nexus." *Environmental Research Letters* 12.10 (2017): 105003

John Sherwood, Anthony Ditta, Becky Haney, Loren Haarsma, & Michael Carbajales-Dale. (2017). "Resource Criticality in Modern Economies: Agent-based model demonstrates vulnerabilities from technological interdependence." *Biophysical Economics & Resource Quality* 2.3 (2017): 9

Presentations

John Sherwood, Rob Bickhart & Michael Carbajales-Dale. (2017, 3-5 Oct.). "The Thermal Coal Transportation Story: Transportation Emissions since 2008." Oral presentation at the 2017 American Center for Life Cycle Assessment Conference, Portsmouth, New Hampshire.

John Sherwood, Raeanne Clabeaux, & Robert Bickhart Jr. (2016, 27-29 Sept.). "Life Cycle Assessment of the ACLCA Conference." Oral presentation at the 2016 American Center for Life Cycle Assessment Conference, Charleston, South Carolina.

John Sherwood & Becky Haney (2016, 26-29 June). "Modeling Resource Criticality in an Economy." Oral presentation at the 2016 International Society for Ecological Economics Conference, Washington, D.C.

Skills

Data Visualization & Analytics
- Advanced proficiency using Tableau, Excel
- Intermediate proficiency using R, MATLAB

Programming
- Intermediate proficiency using R, MATLAB
- Intermediate proficiency using LabVIEW
- Beginner proficiency using C++, Python, VBA

Energy System Design
- Advanced proficiency, power plant cycle design
- Advanced proficiency, demand-side reductions
- Intermediate proficiency, Wind turbine, solar PV design & placement

Life Cycle Assessment
- Intermediate proficiency, I-O techniques
- Intermediate proficiency, OpenLCA

Data Cleaning & Processing
- Intermediate proficiency using Alteryx, R, MATLAB
- Beginner proficiency using OpenRefine

High-Performance Computing (HPC)
- Beginner proficiency using PBS job schedulers
- Operate HPC & move data using Linux, Windows, or OSX operating systems

Project & Task Management
- Led engineering projects involving 2 to 32 personnel
- Organized tasks lasting from weeks to a full year
- Communicated with team & customers to meet or exceed project requirements on time

Technical Writing & Editing
- 6 years' experience preparing technical reports
- Experience reviewing & editing grant proposals

References

Michael Carbajales-Dale madale@clemson.edu	Assistant Professor	Clemson University
Sez Atamturktur sez@clemson.edu	Professor	Clemson University
Becky Haney brh22@calvin.edu	Associate Professor	Calvin College