# Ashkan Mirzaee

Email: amtwc@umsystem.edu

Website | GitHub | GitLab | LinkedIn | Google Scholar

## Education

**Ph.D., Industrial Engineering and Operations Research** *May 2022*
**Minor**: Statistics
University of Missouri, Columbia, MO

- Thesis: *Impacts of woody biomass production and biopower generation on US forests*

**M.S., Industrial Engineering and Operations Research** *May 2017*
University of Missouri, Columbia, MO

- Thesis: *Alternative methods for calculating optimal safety stock levels*

**B.S., Industrial Engineering** *December 2010*
Azad University, Arak, Iran

## Experience

**Data Scientist** *January 2022 - present*
Ford Motor Company, Dearborn, MI

- Developing use cases for a reductive design implementation based on the collected vehicle data
- Conducting big data analytic on a Hadoop cluster using Spark and Hive

**Cyberinfrastructure Engineer** *January 2020 - December 2021*
Research Computing Support Services, University of Missouri, Columbia, MO

- Supported researchers to facilitate research on an High Performance Computing (HPC) cluster
- Installed software on Linux systems using Spack, Conda, and Singularity and Docker containers
- Developed a Python toolbox to facilitate access to the cluster resources

**Intern Research Assistant** *June 2019 - August 2019*
Resources for the Future, Washington, DC

- Collaborated to include biopower generation to the RFF's electricity market model
- Created a Python web scraping program to collect data for woody biomass availability across US

**Graduate Research Assistant** *January 2016 - December 2021*
University of Missouri, Columbia, MO

- Forecasted optimal level of woody biomass production with minimum environmental effects
- Performed statistical analysis in R to estimate the impact of woody biomass production on forests
- Conducted SQL big data analysis to improve demand forecasting for Anheuser-Busch supply chain
- Developed a Python API for accessing Forest Inventory and Analysis (FIA) database in parallel

## Computing

- *Programming:* Python, R, Bash, SQL
- *HPC Clusters:* Linux, Slurm, Spack, Lmod, Singularity, Globus
- *Cloud computing:* Google Cloud Platform, Kubernetes
- *Optimization:* GAMS, Gurobi
- *Libraries:* SQLite, PySpark, Shapely, NumPy, Numba, mpi4py, Sphinx, nlme, plm, ggplot2, *sf*, parallel
- *Miscellaneous:* Git, Docker, Vagrant, Conda, JupyterLab, Emacs, Markdown, Regular expression

## Publications

- **Mirzaee, Ashkan**, Ronald G. McGarvey, and Francisco X. Aguilar. "Optimal level of biopower generation and its environmental impacts." (In progress)
- **Mirzaee, Ashkan**, Ronald G. McGarvey, Francisco X. Aguilar, and Erin M. Schliep. "Impact of biopower generation on eastern US forests." *Environment, Development and Sustainability* (2022)
- Picciano, Paul, Francisco X. Aguilar, Dallas Burtraw, and **Ashkan Mirzaee**. "Environmental and socio-economic implications of woody biomass co-firing at coal-fired power plants." *Resource and Energy Economics* (2022)
- Aguilar, Francisco X., **Ashkan Mirzaee**, Ronald G. McGarvey, Stephen R. Shifley, and Dallas Burtraw. "Expansion of US wood pellet industry points to positive trends but the need for continued monitoring." *Nature: scientific reports* (2020)
- **Mirzaee, Ashkan**, and Mohamed Awwad. "Shortest Path Algorithm in the Presence of Polyhedral Forbidden Regions." In IIE Annual Conference. Proceedings. *Institute of Industrial and Systems Engineers* (2017)
- **Mirzaee, Ashkan**. "Alternative methods for calculating optimal safety stock levels." *University of Missouri-Columbia* (2017)

## Presentations

- Impact of biopower generation on US forests, INFORMS Annual Meeting, Anaheim, CA (2021)
- A Python API for accessing Forest Inventory and Analysis database in parallel, PEARC21 (2021)
- Impact of increased biomass electricity generation on forest health, INFORMS Annual Meeting (2020)
- $CO_2$ Emissions reduction by identifying optimal level of co-firing biomass in coal-burning power plants, INFORMS Annual Meeting, Seattle, WA (2019)
- Woody biomass use for biopower and its impact on forest resources, INFORMS Annual Meeting, Phoenix, AZ (2018)
- Shortest path algorithm in the presence of polyhedral forbidden regions, IISE Annual Conference, Pittsburgh, PA (2017)
- Calculating optimal safety stock levels, CELDi Conference, Columbia, MO (2016)
- Alternative methods for calculating optimal safety stock levels, CELDi Conference, Atlanta, GA (2016)

## Affiliations and Awards

- Software Carpentry Trainer
- XSEDE Student Champions
- US Research Software Engineer Association
- Alpha Pi Mu, Industrial Engineering Honor Society
- Institute for Operations Research and the Management Sciences (INFORMS)
- Innovative Design Competition, 1st place award ($1,500), IISE Annual Conference (2017)
- Mizzou Advantage Graduate Award ($600), University of Missouri (2017)
- Outstanding IMSE Masters Student Award, University of Missouri (2017)
- GIA Award Scholarship ($10,000), University of Missouri (2017)
- Graduate Professional Council, Student Affairs Committee, August (2016)