

# ASHKAN MIRZAEI

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[Website](#) | [GitHub](#) | [GitLab](#)

## EDUCATION

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### **Ph.D., Industrial Engineering and Operations Research**

*December 2021*

**Minor:** Statistics

University of Missouri, Columbia, MO

- Thesis: *Biopower generation and its impacts 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

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### **Graduate Research Assistant**

*February 2016 - present*

University of Missouri, Columbia, MO

- Forecasting 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
- Developing and maintaining Git repositories for the research projects' codes and documentation

### **Cyberinfrastructure Engineer**

*January 2020 - present*

Research Computing Support Services, University of Missouri, Columbia, MO

- Supporting researchers to facilitate research on an High Performance Computing (HPC) cluster
- Providing documentation and training to enable research productivity
- Installing 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 Teaching Assistant**

*January 2015 - January 2016*

University of Missouri, Columbia, MO

- Teaching assistant for several courses including Engineering Statistic and Supply Chain Systems

## COMPUTING

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- *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

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- **Mirzaee, A.**, McGarvey, R.G., Aguilar, F.X. et al. *Multi objective optimization for identifying level of bioenergy generation in coal burning power plants*. In progress.
- Picciano, P., Burtraw, D., Aguilar, F.X. & **Mirzaee, A.** *Environmental and socio-economic implications of woody biomass use for biopower co-firing*. Under review.
- **Mirzaee, A.**, McGarvey, R.G., Aguilar, F.X., Schliep E.M. *Impact of biopower generation on US forests*. Under review.
- Aguilar, F.X., **Mirzaee, A.**, McGarvey, R.G. et al. *Expansion of US wood pellet industry points to positive trends but the need for continued monitoring*. Sci Rep 10, 18607 (2020).
- **Mirzaee, A.** & Awwad, M. *Shortest path algorithm in the presence of polyhedral forbidden regions*. In 67th Annual Conference and Expo of the Institute of Industrial Engineers 2017 (2017).
- **Mirzaee, A.** *Alternative methods for calculating optimal safety stock levels*. University of Missouri (2017).

PRESENTATIONS

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- Impact of biopower generation on US forests, INFORMS Annual Conference, October 2021, Anaheim, CA
- A Python API for accessing Forest Inventory and Analysis database in parallel, PEARC21, July 2021, virtual
- Impact of increased biomass electricity generation on forest health, INFORMS Annual Conference, November 2020, virtual
- CO<sub>2</sub> Emissions reduction by identifying optimal level of co-firing biomass and natural gas in coal-burning power plants, INFORMS Annual Conference, October 2019, Seattle, WA
- Woody biomass use for biopower and its impact on forest resources, INFORMS Annual Conference, November 2018, Phoenix, AZ
- Shortest path algorithm in the presence of polyhedral forbidden regions, IISE Annual Conference, May 2017, Pittsburgh, PA
- Calculating optimal safety stock levels, CELDi Conference, October 2016, Columbia, MO
- Alternative methods for calculating optimal safety stock levels, CELDi Conference, April 2016, Atlanta, GA

AFFILIATIONS AND AWARDS

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- 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)
- Graduate Professional Council, Student Affairs Committee, August 2015 - August 2016
- Innovative Design Competition, 1st place award (\$1,500), IISE Annual Conference, May 2017
- Mizzou Advantage Graduate Award (\$600), University of Missouri, April 2017
- Outstanding IMSE Masters Student Award, University of Missouri, March 2017
- GIA Award Scholarship (\$10,000), University of Missouri, January 2017