

# ASHKAN MIRZAEI

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## EDUCATION

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

*December 2021*

**Minor:** Statistics

University of Missouri, Columbia, MO

- Advisor: Dr. Ronald G. McGarvey

### **M.S., Industrial Engineering and Operations Research**

*May 2017*

University of Missouri, Columbia, MO

### **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

- Estimating optimal level of biomass production to maintain its sustainability constraints
- Forecasting level of biomass production and its impacts on forest resources in the long-term
- Performed statistical analysis to estimate the impact of woody biomass demand on US forests
- Developed a Python API for accessing Forest Inventory and Analysis (FIA) database in parallel
- Conducted research and data analysis for improving demand forecasting methods

### **Cyberinfrastructure Engineer**

*January 2020 - present*

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

- Supporting researchers to facilitate scientific workflows on a HPC cluster
- Providing documentation and training to enable research productivity
- Installing and maintaining software on Linux systems in support of high performance computing

### **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

### **Industrial Engineering Operations Specialist**

*March 2016 - December 2016*

EternoGen Aesthetics, Columbia, MO

- Built and maintained database for procurement and inventory management system
- Performed statistical analysis and collaborated to meet ISO 13485 compliance

### **Graduate Teaching Assistant**

*January 2015 - January 2016*

University of Missouri, Columbia, MO

- Teaching assistant for several courses including Engineering Statistic and Energy Efficiency

## COMPUTING

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Python, R, Bash, SQLite, GAMS, Git, Slurm, Spack, Conda, Vagrant, Singularity, HPC Clusters, Linux Administration, Emacs, Markdown, JupyterLab

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. et al. Impact of increased 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 (University of Missouri-Columbia, 2017).

PRESENTATIONS

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- Impact of biopower generation on US forests, INFORMS Annual Conference, October 2021, Anaheim, CA (*accepted*)
- A Python API for accessing Forest Inventory and Analysis database in parallel, PEARC21, July 2021, virtual (*accepted*)
- 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

ATTENDED WORKSHOPS

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- The ACM PEARC21 virtual student program, July 2021 (*accepted*)
- GPN: Doing Genomics in the Cloud, June 2021
- Software Carpentry Instructor Training, December 2020
- XSEDE: Big Data and Machine Learning, August 2020
- XSEDE: Python and Performance, July 2020
- Spack Tutorial on AWS, July 2020
- PEARC20: Building Better Scientific Software in Python, July 2020
- PEARC20 Workshop: Introduction to Numpy, July 2020

- PEARC20: Deep Dive into Constructing Containers for Scientific Computing, July 2020
- XSEDE: Summer Boot Camp, June 2020
- XSEDE: MPI, May 2020

#### AFFILIATIONS AND AWARDS

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- Software Carpentry Trainer
- XSEDE Student Champions
- Alpha Pi Mu, Industrial Engineering Honor Society
- Institute for Operations Research and the Management Sciences (INFORMS)
- Institute of Industrial and Systems Engineers (IISE)
- 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