Ashkan Mirzaee

Email: amtwc@umsystem.edu

Website | GitHub | GitLab

Education

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

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 large data analysis using SQL for improving a supply chain demand forecasting methods
- 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 a High Performance Computing (HPC) cluster
- Providing documentation and training to enable research productivity
- Installing and maintaining software on Linux systems using Spack, Lmod and Conda
- 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

- *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
- *Miscellaneous:* Git, Conda, Vagrant, JupyterLab, Emacs, Markdown, LaTeX

Publications

- **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 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

- 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
- Impact of increased biomass electricity generation on forest health, INFORMS Annual Conference, November 2020, virtual
- CO_2 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

- 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