

Sofia Pozsonyiova

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Education

Macalester College, St. Paul, MN

Bachelor of Arts: Expected May 2020

Major: Applied Mathematics and Statistics

Concentration(s): Data Science, Community and Global Health

Work Experience

Arundel Metrics

August 2018 - Present

Undergraduate Intern, St. Paul, MN

- Assisting in the compilation of America's Health Rankings 2020 Annual Report
- Tasks include analyzing, interpreting and visualizing complex health, economic and social data to improve the health and well-being of individuals and communities

Macalester College Financial Aid

August 2018 - Present

Non-Actuarial Analyst Intern, Minneapolis, MN

- Provide applications, information, and assistance to students regarding available financial aid programs, such as grants, loans, scholarships, and work study jobs
- Review financial aid application forms for accuracy and completeness; secure additional information from students as necessary.
- Help process financial aid applications and transcripts; prepare and maintain student folders

Mercer Consulting

June 2019 - August 2019

Non-Actuarial Analyst Intern, Minneapolis, MN

- Completed comprehensive analysis of health care data using Excel spreadsheet and SQL database management software
- Worked on multifaceted projects to gain a better understanding of health care delivery systems, specifically government-sponsored health and welfare programs, such as Medicaid and Medicare
- Assisted in the development of client Medicare Rate Cells communications, proposals, reports, spreadsheets, and presentations

Research Experience

Dr. Prasoon Diwakar's Research Team,

May 2019 - Present

Remote Data Analyst, Purdue University

- Tasks include obtaining and cleaning large data sets for further analysis
- Head of creating machine learning classification algorithms to classify different samples; Soil, Ore, Gases, and Carcinogens
- Assisting high school students at Ransom Everglades in analyzing and classifying their LIBS Spectra data

Frost Science Museum

November 2018 - May 2019

Data Analyst Intern, Carcinogen Program, Miami, FL

- Integrated machine learning classification techniques to complex emission spectra to classify samples as either carcinogenic or pure
- Head of statistical analysis of data and preparation of manuscripts for publication
- Educated museum guests on LIBS and its application to carcinogen detection

The Institute for Nano biology and Structural Biology

June 2018 - August 2018

Computational Research Assistant, Nove Hradky, Czech Republic

- Implemented computational models and data analytics to gain better understanding of structural and functional consequences of DNA mutations
- Research results improved the molecular understanding of diseases caused by deficiency in recessive disorder

- Attended the 8th annual Vise grad Symposium on Structural Systems Biology in Lucenec, Slovakia

Frost Science Museum

June 2017 - December 2017

Research Intern, Carcinogen Program, Miami, FL

- Developed laser induced breakdown spectroscopy systems for portable environmental application
- Researched informal science education for STEM fields in a museum setting
- Researched the multivariate analysis of complex samples using Atomic/Molecular Emission Spectra
- Spoke about both research projects at SCIX International Science Conference

Teaching Experience

Teacher Assistant

- Introduction to International Public Health (*1 Semester*)
- Statistical Modeling and Machine Learning (*2 Semesters*)

Fellowships

- Taylor Hill Public Health - Full Fellowship (*Summer 2018*)

Publications

In Preparation

- 1. **Pozsonyiova S.**, Diwakar P.K, Fernandez M., Orme E. Bridging the gap between statistical modeling and libs: *Application of statistical models and machine learning techniques to better classify LIBS spectra data (1st Author)*
- 1. **Pozsonyiova S.**, Diwakar P.K, Fernandez M., Orme E. *"Classification of toxic soils through the application of machine learning models to LIBS spectra data "*

Presentations

Poster(s)

- 1. **Pozsonyiova S.**, Grinkevich P., Ettrich R. "Assisted Expression, Purification, and Stabilization of PAPSS: 3'-Phosphoadenosine 5'-Phosphosulfate-Synthase" (Will Present at Macalester College: 2020 Public Health Fair)
- 1. **Pozsonyiova S.**, Grinkevich P., Ettrich R. "Structural analysis of PAPSS: 3'-Phosphoadenosine 5'-Phosphosulfate-Synthase through computational modeling: Academy of Sciences, Nove Hradky, Czech Republic"
- 1. **Pozsonyiova S.**, Diwakar P.K, Fernandez M., Orme E. "Bridging the gap between Statistics and LIBS: *The integration of statistical models and machine learning techniques to better classify LIBS spectra data*" (Will present at 2019 SCIX International Conference, Palm Springs, California)

Projects

Outside Research Projects

- Application of statistical models and machine learning techniques to better classify LIBS spectra data (*Current Project*)
- Applying machine learning classification methods to LIBS experiment data in a high school setting to promote STEM education (*Current Project*)
- Use of LIBS spectra data and Machine Learning to detect carcinogenic material within electronic cigarettes (*Winter 2018*)
- Application of Computational Models to understand the structural and functional consequences of the PAPSS2(b) DNA mutation (*Summer 2018*)
- Multivariate Analysis of Complex Samples Using Atomic and Molecular Emission Spectra (*Summer 2017*)

Major Semester Research Projects

- Do babies hold the key to our Hearts? A look into the effect of pregnancy on a women's average heart rate (*Epidemiology: Fall 2018*)

- Introduction of Biomedicine in Peru, and its Order of Treatment in Rural and Urban Areas (*World Healing: Spring 2018*)
- Toughness Redefined: Analysis Behavioral Health resources for Macalester Student Athletes (*Health Psychology: Fall 2017*)

Leadership & Service

Community Leadership

- **RLadies**, Minneapolis, MN February 2019 - Present
Encouraging underrepresented groups to contribute to the R environment
- **Minnesota Science and Business Association**, Minneapolis, MN January 2017 – January 2018
Liaison for Macalester College

On-Campus Leadership

- **Children’s Miracle Network**, St. Paul, MN September 2017 – Present
Event Planning Chair: In charge of planning fundraising events and overseeing event team
- **First Generation to College Network** September 2018 – Present
- **Varsity Swim Team**, Macalester College, St. Paul, MN September 2016 - May 2017

Skills

Technical

- R (*Research Proficiency*)
- Github
- Python3
- Microsoft Office Packages

Language

- English (*Full Proficiency*)
- Slovak (*Full Proficiency*)
- Czech (*Working Proficiency*)