

# 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

**Office Assistant**, St. Paul, 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 8<sup>th</sup> 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 (1<sup>st</sup> 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*)