

## SOFIA POZSONYIOVA

Durham, NC

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### PROFILE

A leader of change and Master of Biostatistics candidate who brings innovative approaches to research through leveraging statistical methodology and creative problem-solving with the ultimate goal to make a tangible impact on patient care. Published author and presenter with experience in statistical research ranging from genome-wide association studies to clinical trials.

**Technical skills:** R (Advanced), SAS (Intermediate), Microsoft Office

### EDUCATION

**DUKE UNIVERSITY**, School of Medicine, Durham, NC

**Master of Biostatistics**, May 2023

Relevant coursework includes: Statistics Theory & Methods, Applied Biostatistics Methods, Introduction to Practice of Biostatistics, Statistical Programming

**MACALESTER COLLEGE**, St. Paul, MN

**Bachelor of Arts, Major: Applied Mathematics & Statistics, Concentration: Community & Global Health**, May 2020

Relevant coursework included: Bayesian Statistics, Statistical Modeling & Machine Learning, Probability Theory, Correlated Data, Causal Inference, International Public Health, Epidemiology, Community Health & Psychology

**Senior Thesis: A Spatial and Longitudinal Look at Parent Adolescent Relationships and E-Cigarette Usage in Minnesota**

### EXPERIENCE

**MAYO CLINIC**, Rochester, MN (Remote)

2020-Present

Department of Quantitative Health Sciences, Department of Psychiatry and Psychology

**Statistical Program Analyst I**

- Lead statistical analyses for multiple clinical trial manuscripts involving bipolar and alcohol use disorder
- Write programs for genome-wide association studies focusing on alcohol use disorder using SAS and R programming languages that will be presented to clinicians for immediate use and subsequently for manuscripts
- Apply data manipulation and data preparation knowledge to maintain datasets and prepare them for subsequent analyses

**SOUTH DAKOTA SCHOOL OF MINES**, Rapid City, SD (Remote)

2018-2020

**Undergraduate Research Statistician**

- Developed machine learning and statistical methods to geographically identify ore samples to ensure quality standards are met
- Trained undergraduate and graduate students in the LIBS laboratory on statistical methods and software
- Started building R packages geared to better handle complex LIBS data as well as simplify the visualization and analysis process

**ARUNDEL METRICS**, St. Paul, MN

Fall 2019

**Undergraduate Health Data Intern**

- Analyzed, interpreted, and visualized complex health, economic and social data using R software; data was then used in the compilation of America's Health Rankings 2019 Annual Report and ultimately will help to improve health awareness
- Translated complex statistical and medical information to be shared to a non-technical audience for use in public health policy development

**MERCER**, Minneapolis, MN

Summer 2019

**Government Health Analyst Intern**

- Evaluated quality and access to Pennsylvania's Behavioral Health Services by assessing the state's fiscal and calendar-year Medicaid budget which set standards for the state's 2020 Medicaid budget
- Validated large state healthcare data sets using Microsoft Excel and SQL database management software
- Analyzed Philadelphia's Children's Crisis Services which led the state government to make a significant change in fund allocation

**FROST SCIENCE MUSEUM**, Miami, FL

2017-2019

**Undergraduate Statistician & Data Analyst (2018-2019)**

- Led the data analysis for the Inventors in Residence Carcinogen Research Team to help detect environmental carcinogens
- Designed new methods to efficiently classify complex emission spectra data using hierarchical clustering methods
- Developed coding procedures and data protocols, as well as prepared reports and presentations

**Research Assistant (2017-2018)**

- Collaborated in the development of portable LIBS laser systems to aid in near-real-time detection of carcinogens with the goal of improving health through limiting toxic exposures
- Conducted literature reviews, collected data, and summarized results which led to a new study on the multivariate analysis of complex samples using atomic and molecular emission spectra

**Research Fellow**

- Performed computational modeling and in-lab gene expression to provide a better structural understanding of the PAPSS2(b) DNA mutation; sent to other laboratories for the development of specialized medicine
- Developed and documented a laboratory experiment protocol to aid future students

**TEACHING EXPERIENCE**

Spring 2020 Semester: Math 155 Introduction to Statistical Modeling (Two Sections)  
 Spring 2019 Semester: Math 253 Statistical Modeling and Machine Learning (Two Sections)  
 Fall 2019 Semester: Math 253 Statistical Modeling and Machine Learning (Two Sections)  
 Spring 2018 Semester: INTL 282 Introduction to International Public Health (One Section)

**PUBLICATIONS****Journals**

Ho A.M., **Pozsonyiova S**, Waller T.C, Song Y, Geske J.R, Karpyak V.M, Winham S.J, “Associations of Sex-related Hormones and Proteins with Alcohol Dependence: a UK Biobank Study”, *Neuropsychopharmacology*, (Submitted 2021) (Paper)

Waller T.C, **Pozsonyiova S**, Ho A.M, Biernacka J.M, Karpyak V, Winham S.J, “Genetic Correlation Testosterone Levels and Alcohol Dependence in Females and Males”, *European Neuropsychopharmacology*, (2021) (Article)

Biernacka J.M, Coombes B.J, Batzler A, Ho A.M, Geske J.R, Frank J, Hodgkinson C, Skime M, Colby C, Zillich L, **Pozsonyiova S**, Ho M.F, Kiefer F, Rietschel M, Weinshilboum R, O'Malley S.S, Mann K, Anton R, Goldman D, Karpyak V.M, “Genetic Contributions to Alcohol Use Disorder Treatment Outcomes: A Genome-Wide Pharmacogenomics Study”, *Nature Neuropsychopharmacology*, (2021) (Paper)

Ho A.M.C, Geske J.R, Waller T.C, Winham S., **Pozsonyiova S.**, Karpyak V.M, “Associations of Sex Hormones with Alcohol Dependence and Broad Depression in UK Biobank”, *Biological Psychiatry*, Vol 89, Issue 9, (2021) (Article)

**Pozsonyiova S**, Diwakar P.K, Fernandez M, Orme E, “Bridging the Gap: Integrating Statistical Modeling and Machine Learning Methods to Better Classify and Visualize LIBS Spectra Data”, (In Preparation) (Paper)

United Health Foundation., America's Health Rankings 2019 Annual Report: A Call to Action for Individuals and Their Communities.

**CONFERENCES & POSTER PRESENTATIONS**

**Pozsonyiova S**, Geske J, Ho A.M, Waller T.C, Winham S, Karpyak V, “Association Between Sex Hormone Levels and Alcohol Use Disorder Within the UK Biobank and the Effect of Missingness”, Contributed poster at *Quantitative Health Sciences Mayo Clinic Scientific Sessions*, 2021, Remote.

Diwakar P.K., **Pozsonyiova S**, Pradhan R, Kessinger S, Leckband C, Chen K, Kellar J, Diaz D, Han D, “LIBS and Raman Spectroscopy Integration with Advanced Machine Learning Methods to Analyze Complex Samples”, Invited presentation at *SciX International Conference*, 2020, Remote.

**Pozsonyiova S**, Diwakar P.K, Investigating Complex LIBS Samples Through the Integration of Raman Spectroscopy and Advanced Machine Learning Methods. Contributed poster at *SciX International Conference*, 2020, Remote.

**Pozsonyiova S**, Rafferty Q, Adams F, “A Spatial and Longitudinal Look at Parent Adolescent Relationships and E-Cigarette Usage in Minnesota”, Contributed presentation at *Macalester College's Senior Capstone Day*, 2020, St. Paul, MN.

**Pozsonyiova S**, Diwakar P.K, Fernandez M, Orme E, “Bridging the Gap: Integrating Statistical Modeling and Machine Learning Methods to Better Classify and Visualize LIBS Spectra Data”, Contributed poster at *SciX International Conference*, 2019, Palm Springs, CA.

**HONORS & AWARDS**

Awarded **2020 Undergraduate Student Award** by the Society of Applied Spectroscopy, recognition for successful application of statistics, machine learning, and visualization to complex LIBS data

Awarded **2019 FACSS Student Poster Award** by the Federation of Analytical Chemistry and Spectroscopy Society for “Bridging the Gap: Integrating Statistical Modeling and Machine Learning Methods to Better Classify and Visualize LIBS Data”

Granted **Taylor Hill Public Health Fellowship** to conduct 10 weeks of independent public health research in the Czech Republic

**LEADERSHIP & SERVICE****MACALESTER COLLEGE ON CAMPUS**

Macalester Dance Marathon (MacPACT), *President*, St. Paul, MN

2019-2020

Macalester Dance Marathon (MacPACT), *Event Chair*, St. Paul, MN

2017-2019

Varsity Swim Team, St. Paul, MN

2016-2017

**COMMUNITY**

Women in Machine Learning & Data Science, Minneapolis, MN

2019-2020

RLadies, Minneapolis, MN

2019-2020

Minnesota Science and Business Association, Minneapolis, MN

2017-2018

**ADDITIONAL INFORMATION**

**Languages:** Slovak (Native), English (Native), Czech (Working Proficiency)

**Technical Skills:** R(Advanced), R Shiny, SAS(Intermediate), Bash, Git, LaTeX, Microsoft Office Packages

**Professional Affiliation:** American Statistical Association, Present  
Society of Applied Spectroscopy, 2019-2021