Martyna Lukaszewicz, Ph.D.

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EDUCATION

University of Idaho (Moscow, ID)
May 2024
Ph.D. Bioinformatics and Computational Biology – Focus Area in Mathematical Sciences

- Dissertation: "Development and Testing of Algorithms to Perform Inference about Environmental Adaptation and Species Abundance in Population Genomics and Metagenomics"

University of Idaho (Moscow, ID)
August 2018
M.S. Statistical Science

- Thesis: "Sample Size Estimation in the Multinomial Model"

Washington State University (Pullman, WA)
August 2015
B.S. Biology, Minors in Engineering and Mathematics

EXPERIENCE

Datnamics (Remote, US)
Founder, July 2024 – Present
Schedule: Part-Time

- Leads a data consulting practice specializing in advanced analytics, causal inference, and optimization techniques to enhance medical billing outcomes.
- Utilizes statistical methods to identify patterns and root causes of billing errors and denials, implementing solutions to improve accuracy and reduce denial rates.

University of Idaho (Remote, US)
Graduate Student, August 2022 – May 2024
Schedule: Part-Time

- Published advanced research in causal discovery, including Bayesian methods, integrating multi-modal data analysis, optimization techniques, and predictive modeling to develop in-silico models for genomic and GIS agricultural data.
- Identified required percent data completeness of diagnostics pipelines for the results to be reproducible of similarity value of at least 0.95 and made evidence-based recommendations for both academic research and clinical applications.

Southern Nevada Health District (Las Vegas, NV)
Informatics Scientist, August 2022 - July 2023
Schedule: Full-Time

- Led the development and execution of a COVID-19 vaccination follow-up campaign, integrating advanced analytics, Python, SQL, API technologies, and overseeing system integration to enhance outbreak monitoring and response.

University of Idaho (Moscow, ID)
Graduate Research Assistant, August 2016 – August 2022
Schedule: Full-Time

- Developed and validated R and Python simulation models for evolutionary, metagenomic, and agricultural data, focusing on data integrity, optimization, and predictive modeling.
- Authored publications, research proposals and presented findings, contributing to academic and funding discussions with advanced statistical and data modeling techniques.

ArcherDX (Boulder, CO)
Biostatistics Intern, June – August 2020
Schedule: Full-Time
- Collaborated with bioinformaticians to design and automate studies on cancer biomarkers, ensuring accurate data processing using Docker containers and AWS cloud-based environments.

GOED Omega-3 (Remote, US)
Independent Contractor, January 2017 – August 2019
Schedule: Part-Time
- Designed Identified research study design types of over 400 publications per month on clinical trials, and their study outcomes due to EPA/DHA treatment to establish evidence-based practices.

IEH Laboratories & Consulting Group (Seattle, WA)
Quality Control Technician, January 2016 – August 2016
Schedule: Full-Time
- Applied PCR analysis and bioengineering principles to analyze chemical compositions and ensure compliance with ISO standards for pathogen detection systems.

PROFESSIONAL SERVICE

Graduate & Professional Student Association, University of Idaho (Moscow, ID)
Director of Finance/Statistical Science Senator, August 2017 – May 2020
Schedule: Part-Time
- Redesigned the budget, increasing annual reserve fund contributions from 1–5% to 5–10%.

CERTIFICATIONS

Certified Carpentries Instructor, The Carpentries, September 2022
Learning SQL Programming, LinkedIn Learning, June 2023
(In Preparation: Six Sigma Yellow Belt, **American Society For Quality (ASQ)**)

MEMBERSHIPS

Society for Industrial and Applied Mathematics (SIAM), 2024 – Present
Member

LANGUAGES

Polish – Bilingual; **English** – Bilingual

PUBLICATIONS ----------

- **Lukaszewicz M**, Dennis B. Determination of sample size for a multinomial model coupled with the phenology model. **Frontiers in Applied Mathematics and Statistics**. 2024 Jul 2;10:1374832. doi.org/10.3389/fams.2024.1374832

- **Lukaszewicz M**, Salia OI, Hohenlohe PA, Buzbas EO. Approximate Bayesian computational methods to estimate the strength of divergent selection in population genomics models. **Journal of Computational Mathematics and Data Science**. 2024 Feb 7:100091. doi.org/10.1016/j.jcmds.2024.100091

Pending Submission:

- **Lukaszewicz M**, Ridenhour BJ, Stalder T, Top EM. Assessing the reproducibility of Hi-C.