Xenofon Giannoulis

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Summary

- Highly motivated individual with a passion for continuous learning and a keen interest in data science, bioinformatics and software development. Possessing a strong analytical mindset, I thrive on solving complex problems and enjoy collaborating within multidisciplinary teams to deliver effective solutions.

Work Experience

Research Scientist   *Helmholtz Munich, Germany*

HELMHOLTZ PIONEER CAMPUS   *June 2020 - May 2024*

- Applied advanced statistical methods to extract meaningful patterns and correlations from large datasets.
- Analyzed and generated more than 45+ terabytes from large Biobank cohorts, revealing insights into gene expression regulation.
- Utilized diverse databases, incorporating both relational and non-relational models, to cross-reference and validate results.
- Organized two Munich School of Data Science retreats, oversaw speaker invitations and agenda management.
- Shared research insights at several highly esteemed international conferences.

Research Fellow   *LMU, Munich, Germany*

LUDWIG MAXIMILIAN UNIVERSITY - DATA SCIENCE FOR SOCIAL GOOD   *August 2023 - September 2023*

- Collaborated with Bavaria's civil protection to improve the planning of the coverage of fire water extraction points.
- Contributed to developing a web application with Flask microframework, Leaflet, Javascript, HTML, and CSS in the front-end.
- Used OpenStreetMap and OSMnx for statistical mapping and routing algorithms, integrating geolocation data in the backend.
- Deployed the application on Amazon Web Services (AWS) using a dockerized container.
- Presented and elucidated all aspects of the project to Germany's federal parliament.

Teaching Assistant   *TUM Munich, Germany*

TECHNICAL UNIVERSITY OF MUNICH - DEPARTMENT OF MEDICINE (ME1660)   *October 2022 - March 2023*

- Developed and configured educational material in Jupyter Lab and participated as a tutor in lectures and workshops.
- Topics covered: UNIX, quality control, association testing, meta-analysis, polygenic risk scores.

Quantitative Analytics Intern   *Helmholtz Munich, Germany*

INSTITUTE OF TRANSLATIONAL GENOMICS   *October 2019 - April 2020*

- Created a quality control pipeline to analyze pre-processed data, guarantee accuracy while merging, and detecting biases.
- Corrected study for population structure (PCA), imputed missing data, and reduced confounding effects through factor analysis.

Technical Skills

Statistics	Skilled in applying predictive modeling to enhance sensitivity of associations in population-scale data. Master in securing data integrity through optimized feature selection and stratified sampling. Expert in complete statistical analysis, including correction, permutations, and hypothesis testing.
Topics	Linear Mixed Models, Interaction Effects, Clustering Algorithms, Covariate selection, Network Analysis, Mediation Analysis, Causal Inference, Conditional analysis, Ontology Engineering, Graph Neural Networks.
Genetics	GWAS, eQTLs, iQTLs, WGS, Illumina, RNAseq, Limix LDAK PLINK edgeR ComBat-seq Bioconductor.
Programming	Strong data analysis and visualization skills with R working with Linux executing in Bash. Certified Oracle MySQL developer with foundational proficiency. Familiar with style of writing Python JavaScript HTML CSS and XML commands. First experience linking data with Protégé and W3C semantic stack RDFs, XML, SPARQL. Emphasis on version control and documentation: Anaconda Github LaTeX RMarkdown Obsidian.
Others	SPSS, MySQL Workbench, Microsoft Access, Microsoft 365, Adobe Illustrator.

Education

Doctoral Candidate
Munich, Germany

TECHNICAL UNIVERSITY OF MUNICH (TUM) - DEPARTMENT OF EXPERIMENTAL MEDICINE
May 2024

- *Machine Learning, Data Engineering, Statistical Genetics, Bioinformatics, Epigenetics.*

MSc. Informatics and Computational Biomedicine
Lamia, Greece

THESSALY UNIVERSITY - DEPARTMENT OF COMPUTER SCIENCE AND BIOMEDICAL INFORMATICS
April 2020

- *Data Mining, Semantics, Digital Imaging, Privacy Preserving, Database Systems.*

Ptychion (4-year BSc.) in Statistics and Actuarial Science
Athens, Greece

PIRAEUS UNIVERSITY - DEPARTMENT OF STATISTICS AND INSURANCE SCIENCE
February 2018

- *Probability Theory, Linear Algebra, Actuarial Mathematics, Bayesian Statistics, Stochastic process.*

Professional Certificates

Teaching in Higher Education - TUM ProLehre Media & Didactics
TUM, DE - April 2023

- Psychology of learning, assessment methods, reflection, evaluation, and advising.

Essential Data Science GmbH - Data Science for Researchers
Virtual - March 2021

- Methodological and theoretical foundations and applications of various data science-related topics.

HIDA | Machine Learning Summer School
Virtual - September 2020

- Supervised and unsupervised Machine Learning walk-through hosted by Helmholtz Data Science Academy.

HMGU | Advanced Graphics with R
Munich, DE - March 2020

- Technical Visualization seminar by the Core Facility of Statistical Consulting.

HMGU | Multivariate Statistics
Munich, DE - January 2020

- Factor analysis and clustering systems seminar by the Core Facility of Statistical Consulting.

Oracle MySQL Certified Developer - 1z0-882
Oracle University, DE - July 2019

- Database administrator, application development, configuration.

Scientific Contributions

Poster, American Dairy Science Association (ADSA 2023)
San Antonio, USA - October 2023

- HydroXplorer: A Fire Hydrant Range Finder Application.

Speaker, Graduate school of Quantitative Biosciences Munich (QBM)
Tutzing, DE - July 2023

- Tissue-specific mtDNA regulation of gene expression.

Poster, Research in Computational Molecular Biology (RECOMB 2023)
İstanbul, TR - April 2023

- Tissue-specific apparent mtDNA heteroplasmy and its relationship with ageing and mtDNA gene expression.

Speaker, Helmholtz Pioneer Campus
Ammersee, DE - Sept. 2022

- How mitochondrial DNA affects health and disease development.

Speaker, Munich School of Data Science (MUDS)
Munich, DE - Nov. 2021

- Statistical methods to detect novel genetic variants.

Scientific Poster, International Genetic Epidemiology Society (IGES)
Virtual, USA - Oct. 2021

- Tissue-specific regulation of mtDNA encoded genes.

Languages

Greek Native
English Fluent
German Intermmediate