github.com/nataliegref
nataliegref.com

Natalie Grefenstette, PhD

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Results-driven with a strong background in scientific research, machine learning and data science. Proven expertise in developing and implementing advanced models to solve complex business problems. Skilled in analyzing data, optimizing models, and delivering high-accuracy results. Recognized for contributions to my field of research, including published research papers and presentations at top conferences. Adept at leading collaborative efforts and managing teams to drive successful project outcomes.

Skills and Tools

Skills Machine learning, Stochastic modeling, Data science, Data visualization, Data processing, Data analysis, Project management, Cheminformatics
Tools Python, Pandas, Numpy, NLP, CNN, Sci-kit, Matplotlib, Seaborn, TensorFlow, Keras, PyTorch, R, LaTeX, Time-series analysis, Monte Carlo sampling, Gillespie algorithms, JChem, GenerateMD and CxCalc

Professional Experience

AI resident **February 2023 — ongoing**
Apziva *remote*

- Led commercial models to identify the root cause of customer dissatisfaction and devised a strategic plan to extend the customer lifecycle, resulting in improved customer retention
- Constructed a deep learning system to identify the most suitable prospective customers from a highly imbalanced dataset, providing the sales team with valuable insights into critical client characteristics and increasing the chances of successful sales.
- Developed a state-of-the-art ML pipeline using natural language processing and learn-to-rank algorithms to reduce the cost of talent acquisition by streamlining the screening process and increasing efficiency
- Created an advanced neural network model to assist visually impaired individuals with document scanning independently
- Forecasted financial movements using state of the art algorithms including LSTM, ARIMA and Prophet in order to maximize profit

Postdoctoral researcher **June 2019 — August 2022**
Santa Fe Institute *Santa Fe, NM, USA*

- Led the construction of computational models for multi-million dollar NASA project to analyze space data for signs of life
- Devised algorithms to look for general polymeric structures (abstracted from RNA, DNA or proteins) in mass spectrometry data
- Spearheaded large scale international collaborative efforts with world leading universities resulting in 2 published chapters
- Executed independent peer review of NASA grants
- Organized a successful workshop for 30+ emerging scholars (budget: $67.1k), along with conference sessions at top conferences
- Published 8 papers in top journals, and was invited to talk and present at key conferences, as well as world leading universities

CEO and Co-founder **November 2017 — June 2020**
Encelo laboratories *London, UK*

- Developed the business-case for non-invasively sourcing patient specific cells for biotechnological applications, and managed the financial budget for prototype and business development
- Top 3% of companies selected for the Rebelbio accelerator (VC-backed)
- Obtained 7 letters of intent from potential clients worth over £50k annually combined, and letters of support from top pharmaceutical and biotech companies
- Hired and led a team to develop applications and client leads, leading the business to secure over £150k in private equity

Entrepreneur in residence **June 2017 — October 2017**
Deep Science Ventures *London, UK*

- Top 3% of candidates selected for the program to work on solving difficult technical challenges in multidisciplinary projects while developing a deep understanding of biotech ecosystems (including health, energy, and climate)
- Built business-cases from a position of fulfilling a need and solving a problem observed in the world while disrupting the established system

Visiting scholar **April 2017 — May 2017**
Earth Life Science Institute *Tokyo, JP*

- Successfully applied new programming skills in a research environment leading to a paper in a top journal in the field
- Developed a program to analyse hypothetical earlier sets of canonical amino acids compared to potentially available non-canonical alpha amino acids (Python)
- Studied the incorporation of amino acids in the genetic code using cheminformatics approaches (JChem, GenerateMD and CxCalc)

Education

PhD, Chemistry, *University College London* - Studied the prebiotic synthesis of RNA precursors **2017**

- Speciliazed in nucleophilic aqueous phosphorylation and systems chemistry
- Discovered a generational node in the network of prebiotic chemistry that links the syntheses of amino acids with nucleotides
- Received an award for best talk at a conference and published my work in several key journals

BSc, Biochemistry, *University College London* - Graduated with honors in the top 5% (Dean's list) **2012**

Soft Skills, Interests and Miscellaneous

Key soft skills	Problem-solving, Curiosity, Analytical thinking, International and interdisciplinary collaboration, Fast-Paced environments, Multitasking, Self-learning, Self-organization, Communicating complex ideas
Languages	English (fluent), French (fluent), Spanish (intermediate)
Interests	Jazz, singing, wood working, digital design, squash
Miscellaneous	Featured in The Economist and the '50 inspirational women in STEMM' book

Notable activities

IBM Data Science Certificate	2023
External conference organizing committee, AbGradCon	2020 — 2021
Peer reviewer for top journals in the field	2020 — present
Undergraduate Complexity Research mentor	2021
Guest lecture at Art of Inquiry, an interactive online school for ages 10-14	2021
Orchestrated a successful Kickstarter campaign, raising +£4000 to record an album	2018

Other media appearances: MIT Technology Review DE, SFI news, Astrobiology NASA news, Blue Marble Space Institute of Science, Smithsonian magazine, Biomusings

Podcasts: Alien Crash Site, Complexity by the Santa Fe Institute, Learning with Lowell