Dr. Alexander Hasha

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SUMMARY

Experienced Data Science technical leader with backgrounds in finance, mathematics, and climate science available for consulting engagements focused on data strategy, team-building, rapid prototyping, due-diligence, and more.

EXPERIENCE

Hasha Data Science, LLC December 2022 - Present

Principal
Freelance Data Science consultant

Persefoni June 2021 - August 2022

Senior Director of Data Science
Persefoni is a leading carbon accounting SaaS firm. I led the engineering pod responsible for building the data and software architecture to implement calculations of greenhouse gas emissions aligned to the GHG Protocol for corporate emissions and the PCAF standard for financed emissions.

- Developed ETL pipelines and database structures to integrate third-party emission factors with the calculation engine
- Introduced documentation and testing processes that reduced the frequency and severity of calculation errors as well as key-person dependencies.
- Developed algorithms to compute proprietary emission factors and to recommend emissions calculation methods based on the users available data

Capital One 2012 - 2021

Divisional Model Risk Officer: Technology, Digital, and HR 2017-2021
Led the model validation and risk management for machine learning models in diverse business domains, including chatbots, cybersecurity, data management, marketing optimization, hiring, identity verification, and fraud. My team upheld standards of practice, ensured regulatory compliance, and enabled informed executive decision making through independent evaluation of machine learning technologies.

Technical Product Owner, Enterprise Machine Learning Platform 2019-2021
Defined requirements and prioritized the backlog for three engineering pods responsible for Capital One's first successful enterprise cloud platforms for model development, analytics, and batch model deployment, enabling thousands of internal analysts to harness the power of open source in the public cloud.

Senior Director of Data Science, Digital Innovation Labs 2012-2016
Led a modeling team with the mission to prove out the business potential of machine learning and open source tech:

- Increased accuracy of Bundle's ML matching algorithms to 99% precision, meeting acceptance criteria for roll-out to all Capital One customers' digital transaction ledger.
- Operationalized the model as Capital One's first production use case of Hadoop and Python
- Developed a software framework for building and deploying ML pipelines that was adopted by multiple teams.
- Evangelized open source collaboration methods and software engineering best practices across Capital One's Data Science community.

Bundle.com 2010 - 2012

Lead Data Scientist
Led a team of developers and data scientists building consumer-facing data products based on billions of credit card transactions.

- Developed a machine learning pipeline to power Bundle's core product, a merchant review website
- Hired and led a team to scale the data product and bring it to market
- Worked with CEO to pitch company for acquisition, and led the technical due diligence process in the company's acquisition by Capital One

Citigroup 2008 - 2010

Associate, Mortgage Backed Securities Modeling
Worked on the agency mortgage prepayment modeling team and supported the term structure modeling team.

EDUCATION

Courant Institute of Mathematical Science – NYU
Ph.D. in Mathematics, GPA: 4.0/4.0, Advisor: Oliver Bühler
Thesis Title: "Gravity wave refraction by three-dimensionally varying winds and the global transport of angular momentum in the atmosphere"

Cambridge University – Trinity College
Master of Advanced Study in Mathematics with Merit

Massachusetts Institute of Technology
Bachelor of Science in Mathematics, GPA: 5.0/5.0, Phi Beta Kappa

VOLUNTEERING

Sustainable Milton December 2020 - Present

Board Member 2022 - Present
Partnering with local non-profits to build a community taking action on climate change. We aim to draw in Milton residents with accessible and rewarding actions to combat climate change and create communities around these actions that residents find personally rewarding.
- Leading a working group helping the town of Milton to develop a climate action plan.
- Launched a community action website
  (see https://community.massenergize.org/sustainablemilton)
- Developed data pipelines to streamline community organizers' access to public sustainability data sets.
  (see https://github.com/massenergize/rad_pipeline)

Interfaith Social Services June 2022 - Present

Food Pantry Worker
I work a weekly three-hour shift stocking and bagging groceries for Interfaith's food pantry clients.

PUBLICATIONS

Hasha, Alexander E and John WM Bush (2002). "Fluid fishbones". In: *Physics of Fluids* 14.9, S8–S8.

Bush, John WM and Alexander E Hasha (2004). "On the collision of laminar jets: fluid chains and fishbones". In: *Journal of fluid mechanics* 511, pp. 285–310.

Hasha, Alexander E (2005). "A Search for Baroclinic Structures". In: *Proceedings of the 2005 WHOI Summer Geophysical Fluid Dynamics Program.*

Hasha, Alexander et al. (2008). "Gravity wave refraction by three-dimensionally varying winds and the global transport of angular momentum". In: *Journal of the atmospheric sciences* 65.9, pp. 2892–2906.

Karpishpan, Yakov et al. (2010). "Introducing the Citi LMM Term Structure Model for Mortgages". In: *The Journal of Fixed Income* 20.1, pp. 44–58.

SKILLS

Applied Mathematics, Machine Learning, Model Validation, Software Quality Assurance, R&D, Open Source Software, Python, SQL, Databricks, Spark, scikit-learn, pandas, Java, R, LaTeX