Bailey Bjornstad

Data Engineer and Analyst at unumAI

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Experience — Engineering, Analytics, and Data Management

2020–2022 **Data Engineer and Analyst**, *unumAI*, Denver, CO

Developed company data management software from mathematical specifications with focus on collection and processing of Google Trends Search data for political prediction and issue analysis research.

- Led company technical development through implementation of most company methodologies using advanced Python, DAX, Azure, and SQL, to facilitate easy collection, transformation, warehousing, and PowerBI presentation of Google Trends Search data. The resulting *pyunum* module contains Python interfaces to custom Google Trends data collection and transformation methods.
- Used asynchronous request tooling in tandem with Azure Function Applications to increase data collection speeds by orders of magnitude at very low cost.
- Integrated Azure tooling for company data maintenance to provide a foundational and extensible software platform for data integration that is accessible to those not necessarily familiar with programming methods or languages.
- Assisted company clients during product and project pitch presentations by clarifying technical aspects of methodology, or with outright presentation of material to prospective client teams when needed.
- Exhibited a strong ability to think quickly and understand new domain specific knowledge across fields as applied to a specific question or technical problem.
- Demonstrated self-sufficiency in a remote environment, managing expectations and workload on a team of only two people in a fast-paced, early-stage start-up environment, with rapidly evolving project directives that result from changing client needs.
- Some of the clients served at unumAI: Children's Hospital Colorado, Partner's for Children's Mental Health, Missouri Department of Health and Senior Services, and Siena College Research Institute, and political campaigns. An exhaustive list can be found at unumai.org.

2019–2020 **Data Management and Analytics Specialist**, *Bright Event Rentals*, San Diego, CA

Assisted company analytics endeavors through CyberQuery programming on database of transactions, rental equipment, and customers

- Wrote customized and automated database queries using CyberQuery to improve rental business analytics and reporting.
- Facilitated major revenue generation by using historical data to optimize sales of equipment rental protection policies.
- Classified customers in terms of business strategy goals using data to identify inconsistencies between company locations.

Computer Skills

Programming/DevOps	`Python (& Jupyter)`, Azure, `SQL`, `R`, Git, Unix Shell	*Expert*
Statistics	`Numpy`, `Pandas`	*Expert*
BI/Visualization	Microsoft Power BI, `DAX`, `Matplotlib`	*Expert*
Typesetting	LaTeX	*Expert*
Linux	Built and maintain a customized installation of Arch Linux as my daily operating system. Familiar with many other distributions as well.	

An ideal next role might involve some of these concepts or technologies (not limiting)

Learning Goals: Ideas/Concepts	Exposure to a broader array of cloud computing, orchestration, and task management architectures, especially with focus on concurrency and user interactability.
Learning Goals: Stacks/Languages	`Rust`, `Scala`, `Go`, SaltStack, Databricks, Docker/Kubernetes, NoSQL, Headless BI

Experience — Mathematics

2017–2019 **Teaching Assistant**, *Northwestern University*, Evanston, IL

Assisted professors of six multivariable and single-variable undergraduate calculus classes by running discussion sections and working one-on-one with students.

2017–2018 **Peer Tutor**, *Northwestern University*, Evanston, IL

Assisted fellow undergraduates of Northwestern University with a variety of math courses in a weekly, drop-in setting.

Summer 2017 **Independent Research in Math**, *Northwestern University*, Evanston, IL

Developed a concept of *mathematical fragility* in birth and death stochastic processes.

- Used `Python` and accompanying analytical tools to develop a preliminary model through simulation of birth and death stochastic processes.
- Mathematically analyzed examples to verify properties of these preliminary models.
- Abstractly developed these preliminary models using mathematical tools from probability to draw out quantities that describe the fragility of a process.

University & Education

2015–2019 **Mathematics**, *Northwestern University*, Evanston, IL, GPA: 3.7/4.0

Undergraduate major in Math with emphasis on advanced classes where possible.
Relevant Courses:

- *ISP Math* — A three quarter intensive course covering multivariable calculus, ordinary differential equations, and linear algebra.
- *Foundations of Higher Math* — A single quarter course on the standards of mathematical proof.
- *MENU Real Analysis* — A three quarter intensive course that rigorously develops calculus, including measure theory.
- *MENU Abstract Algebra & Abstract Algebra* — Two quarters of an intensive course devoted to the study of groups and rings, followed by a one quarter course on Galois Theory.
- *Other Computer Science & Applied Math* — Various computer science and applied math courses covering topics including data structures, `Python` implementations of fundamental algorithms from machine learning, and computational neuronal modeling.

Music Technology, *Northwestern University*, Evanston, IL

Undergraduate minor in Music Technology, with coursework focused on synthesis and analysis of electronic music. In a degree project, co-designed and prototyped a laser harp digital music interface.

2011–2015 **High School Diploma**, *Pacific Ridge School*, Carlsbad, CA, GPA: 4.0/4.0

Awards

May 2016 **Excellence in Mathematics by a First-Year Student**, *Northwestern University*, Evanston, IL

Award given to students who display strong achievement in a number of advanced mathematics courses offered at Northwestern University.

May 2019 **Certificate of Recognition for Service as an Undergraduate Teaching Assistant**, *Northwestern University*, Evanston, IL

A certificate given to senior teaching assistants who dedicated their distinguished skills by continually serving Northwestern's math department.

Hobbies and Interests

Radio DJ Former on-air host of *Non-Euclidean Space*, *Excitotoxicity*, and *Late Night Geometries* on WNUR 89.3 FM Evanston-Chicago, with focus on electronic music of different geometries.

MTG Have played the trading card game *Magic: The Gathering* at a competitive level.

Cooking In the kitchen, a devotee of *Good Eats*'s Alton Brown and publications *Serious Eats* and *Cook's Illustrated*.