

Bailey Bjornstad

Data Engineer and Analyst at unumAI

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Experience

Data Engineering and Analysis

- 2020–Present **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.
- Implemented most company methodologies using Python, SQL, and Azure to facilitate easy collection, transformation, storage, and PowerBI presentation of Google Trends search data.
 - Used asynchronous request tooling in tandem with Azure Function Applications to increase data collection speeds by orders of magnitude at 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.
 - Wrote complex DAX code to tackle interactive visual measurement and display of Google Trends Search data across all client contexts.
- 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

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.
- Fall 2016 **Research Assistant**, *Northwestern University*, Evanston, IL
Aided research on inquiry-based approaches to math education by recording classes and documenting student interactions in a novel classroom setting.

Miscellaneous

- Summer 2016 **Research Assistant**, *University of California San Diego*, San Diego, CA
Developed a reusable analysis pipeline for single-cell RNA sequencing data used in research on middle-ear infections.
- Worked with the R programming language to analyze data sets for intuitive groupings.
 - Wrote a series of scripts designed to process and analyze data sets to look for differences in groupings.
 - Created visualizations of data in order to better understand the differences between these groups.

Education

- 2015–Present **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
Relevant Achievements:
- *Captain of Robotics Team* — Led a team of peers to multiple podium finishes in First Tech Challenge robotics competitions.
 - *Theatrical Technical Director* — Organized and produced the technical side of yearly musicals and plays, particularly with regards to audio.

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.

Computer Skills

Programming	Python, SQL, R	Expert
Cloud Services	Azure Ecosystem	Proficient
Statistics	Numpy, Pandas, Matplotlib	Expert
Typesetting	L ^A T _E X	Expert
Linux	Built and maintain a customized installation of Arch Linux as my daily operating system.	

Hobbies and Interests

- Radio DJ Host of *Non-Euclidean Space*, *Excitotoxicity*, and *Late Night Geometries* on WNUR 89.3 FM, 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*.