Andrew Attilio

attilio.andrew@gmail.com | 423.427.8012 | ⓞ github.com/atiumcache

EDUCATION

Northern Arizona University — Flagstaff, AZ   Expected Graduation: May 2025
Bachelor of Science (BS), Mathematics   Current GPA: 4.0
Minors: Computer Science | Statistics

Awards: Dean's List | J. Harvey Butchart Mathematics Scholarship
Grad-Level Coursework: Statistical Learning | Combinatorial Game Theory

EXPERIENCE

Research Technician (Software)   Flagstaff, Arizona
NAU School of Informatics, Computing, and Cyber Systems   Feb 2024 - Present

- Design and implement a Python package for spatial-temporal modeling of epidemiological systems.
- Optimize computational efficiency by migrating calculations to JAX for GPU acceleration.
- Implement Bayesian Particle Filters, MCMC, and other algorithms to predict the spread of diseases.
- Use parallel processing to efficiently run my models on large datasets using an HPC cluster.

Research Assistant (Combinatorics)   Flagstaff, Arizona
NAU Department of Mathematics and Statistics   Aug 2024 - Present

- Explore combinatorial properties of braid graphs in Coxeter systems.
- Develop a Python package to automatically verify graph properties and generate visual representations.
- Co-author a research paper (in progress).

Grader (Discrete Math)   Flagstaff, Arizona
NAU Department of Mathematics and Statistics   Aug 2024 - Present

- Provide detailed feedback and grading of weekly assignments for over 40 students.

Technical Writer   Flagstaff, Arizona
Independent Contractor   Jan 2020 - Feb 2024

- Develop and author technical content, primarily for companies in the solar energy industry.
- Collaborate with clients and oversee employees using various remote work technologies.

PROJECTS

Flu Forecasting — *Project Link:* `https://github.com/atiumcache/pmcmc_forecast/`

- Use Bayesian Filters and Trend Forecasting to predict new influenza hospitalizations based on real-time case reports. Use machine learning tools and libraries to analyze and improve models.

Pure Recipe — *Project Link:* `https://github.com/atiumcache/pure-recipe/`

- View ad-free recipes in the terminal or save to a markdown file. Works for dozens of popular websites.

CONFERENCE PRESENTATIONS

"Enhancing Real-Time Epidemiological Forecasting with Log Particle Filters and Changepoint Detection"

- Joint Mathematics Meetings (JMM), January 2025. Accepted for presentation.

SKILLS

Languages: Python, R, C, HTML/CSS, SQL, Rust
Technologies: Linux Systems, Version Control (Git, GitHub), Docker, LaTeX
Frameworks and Libraries: Flask, JAX, NumPy, SciPy, Pandas, Scikit-Learn
Data Visualization: Matplotlib, Seaborn, ggplot2
Other Interests: Guitar, Piano, Cooking, Hiking, Fitness