Aviral Chawla

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Research Interests

Statistical Methods to Explore Social & Technical Complexities: bayesian statistics, digital humanities, computational ethics, machine learning & mechanistic interpretability

Education

University of Vermont — Burlington, VT
Ph.D. in Complex Systems & Data Science — *August 2022 – Present*

St. John's College — Santa Fe, NM
Bachelor of Arts in Liberal Arts — *August 2017 – May 2022*

Additional Training

Santa Fe Institute Complex Systems Summer School, Santa Fe, NM (June 2024)
Complex Networks Winter Workshop, Québec City, QC (December 2023)

Professional Experience

Graduate Research Assistant, Complex System Center — June 2024 – Present
University of Vermont — *Burlington, VT*

- Utilized Foundation Generative Models and advanced data mining techniques to explore the socio-cultural context within historical course catalogs, ensuring data integrity through the development of robust validation tools.
- Developed open-source and reproducible data pipelines

Graduate Research Assistant, Transportation Research Center May 2023 – May 2024
University of Vermont — *Burlington, VT*

- Spearheaded the development of interactive web-based visualizations to elucidate disparities in motor vehicle exposure
- Conducted time-series analysis of GIS data looking at traffic density and role of equity in traffic density exposure

Graduate Teaching Assistant, Computer Science — August 2022 – May 2023
University of Vermont — *Burlington, VT*

- **Courses Assisted:** Database Management, Data Structures & Algorithms, Data Visualization, Usable Privacy & Security

Jr. Data Scientist — June 2021 – January 2022
Neat Capital — *Boulder, CO*

- Developed 6 data connectors using REST API to automate and centralize company data
- Developed multivariate time-series forecasting model using LSTM to predict funding times with 8% MAPE

Head Assistant of Senior Laboratory — July 2021 – January 2021
St. John's College — *Santa Fe, NM*

- Led a team of four lab assistants for academic and lab support
- Curated 10-15 experiments in atomic physics, quantum mechanics, microbiology, and genetics

Publications

J. St-Onge, **A. Chawla**, S. Zhang, J. Lovato: From Text to Context: Mining Course Objects with Language Models for Enhanced Catalog Annotation (in preparation)
A. Chawla, W. Thompson, J.G. Young: Social Choice in Large Language Models (in preparation)
A. Chawla, N. Cheney: "Neighbor-Hop Mutation for Genetic Algorithm in Influence Maximization", In GECCO 23 (July 2023)
A. Chawla: "Social Cohesion and Economic Prosperity" In Adam Smith Works by Liberty Fund (August 2022)

Presentation & Talks

A. Chawla, J. St-Onge, J. Lovato, L. Hébert-Dufresne, S Zhang: Historical shifts in the gender composition of US academic faculty through college course catalogs, Int. Conf. on Science of Science & Innovation (June 2025)
A. Chawla, J. St-Onge, J. Lovato, L. Hébert-Dufresne, S Zhang: Mapping the evolution of university curricula through course catalogs, Int. Conf. on Science of Science & Innovation (June 2025)
A. Chawla, J. St-Onge, S. Zhang, J. Lovato: Evolving Course Catalogs: Lexical Analysis of Socio-Political Influence on Higher-Ed, Int. Conf. on Computational Social Science (July 2024)
A. Chawla, L. Hébert-Dufresne, J.G. Young: Bayesian Framework for Inference on Heterogenous Waste-Water Networks, Int. School and Conference on Network Science (June 2024)

Awards & Honors

Best Solution for a problem in Mathematics, St. John's College (May 2022)
Dean's Award for College Service, St. John's College (May 2022)
Ariel Internship Award, St. John's College (May 2019)
Dean's Award for College Service, St. John's College (May 2020)
Presidential Scholarship, St. John's College (May 2017)

Technical Skills

Programming: Python, R, Julia, C++, JavaScript
Web: D3, Svelte, HTML, CSS, Wordpress, Observable
Database: MySQL, SQLite, Postgresql, MongoDB
Developer Tools: Git, Google Cloud Platform, AWS, UNIX systems