ALEX FRIEDRICHSEN

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EDUCATION

M.S. Data Science and Complex Systems – *University of Vermont Complex Systems Center* May 2023

- *4.0 GPA*

B.S. Data Science – *Honors College, College of Engineering and Mathematics* May 2022

- *Minors in Economics, Mathematics, Computer Science, and Statistics*

EXPERIENCE

Researcher and Software Developer – *Social Ecological Gaming and Simulation Lab* August 2022 – Present

- Develops new precision agriculture software in Unity/C#
- Analyzes survey response data using unsupervised learning algorithms
- Implements modular solutions to precision agriculture mapping applications

Teaching Assistant – *Data Science I, Combinatorics* August 2020 – December 2021

- Coded python scripts to automate grading process and assist in online grading
- Coordinated quiz and homework tabulation with class professor

Public Health Analyst I – *Vermont Department of Health* February 2019 – September 2021

- Wrote SAS scripts to automate data entry for monthly data dumps saving 10 hours of time per month
- Created and published data products using statistical software (SAS, R) for dissemination to key stakeholders
- Helped develop GIS REST services database using Python backend
- Attended conferences and national calls to coordinate efforts with out-of-state analysts
- Abstracted data from hundreds of death certificates, coroner reports, police reports, and toxicology reports into the National Violent Death Reporting System (NVDRS) and State Unintentional Drug Overdose Reporting System (SUDORS)

PROJECTS - (Personal Website and Project Portfolio https://alexanderfriedrichsen.github.io)

- *Python* – Deepfake Spread Agent-Based Model – leveraged Mesa library in Python model the spread of videos over social networks. Won 2nd place in the 2021 UVM CS Fair
- *Python* – Poker Hand-History Project – leveraged Pandas to clean and engineer features on a dataset of 50,000 hands, built random forest/linear/logistic regression machine learning models with Scikit Learn to improve my poker profits
- *Python* – Vaccine Hesitancy Analysis – harvested web data and used natural language processing to analyze sentiment
- *Python* – Evolutionary Robot Sim – Used evolutionary machine learning algorithms to train a modular robot to walk
- *R, SQL* – Climbing Statistical Analysis – Analyzed 4-million climbs using PCA, QDA, K-Means, and classification trees

ORGANIZATIONS

Treasurer – *Computer Science Crew* August 2018 – Present

- Organizes meeting agendas and facilitates meetings, contacts and schedules presenters from Burlington companies, manages budget through student government association meetings. Tripled active members in club.

Publicity Coordinator – *1in4 Sexual Assault Prevention Club* August 2020 – August 2021

UVM Competitive Climbing Team – *MetroRock Vermont* August 2020 – Present

Pianist and Keyboardist – *The Kyne Band, Solo Pianist, Accompanist* June 2021 – Present

SKILLS

Programming Languages: Python, SQL, R, C, Java, HTML/CSS/JS, SAS, Julia

Skills: Git, Microsoft Visual Studio Code, Jupiter Notebooks/Google Collab, Agile Development, DevSecOps, Statistical Modeling, Excel, PowerPoint, Google Suites, Zotero citation manager, Slack/Discord/Zoom, LaTeX, B. Spanish, B. French

Relevant Coursework: Machine Learning, Modeling Complex Systems, Data Structures & Algorithms, Data Science I, Linear Algebra, Multivariate Statistics, Evolutionary Computation, Advanced Macroeconomic Theory, Game Theory

Interests: Competitive Magic: The Gathering, Texas Hold'em Tournament Poker, Epistemology, Meditation, Automation