**ALEX FRIEDRICHSEN**

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**EDUCATION**

**M.S. Data Science and Complex Systems –** [*University of Vermont Complex Systems Center*](https://vermontcomplexsystems.org/) **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*](https://segs.w3.uvm.edu/)**August 2022 – September 2021**

* 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, Statistical Modeling, Excel, PowerPoint, Google Suites, Zotero citation manager, Slack/Discord/Zoom/Teams, LaTeX, Basic Spanish, Basic 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, Philosophy, Meditation, Automation