Michaela Murray

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Education

- **Stanford University** — Stanford, CA
  Bachelor of Science in Computer Science and Mathematics — *Sept. 2018 - June 2022 (Expected)*
  - **Relevant Courses**: Programming Abstractions, Computer Organizations and Systems, Logic Programming, Linear Algebra, Group Theory, Probability and Statistical Physics, Computer Networking, Abstract Algebra, Operating Systems (In Progress), Introduction to Algorithms (In Progress)

Experience

- **STEP Intern** — Mountain View, CA (Remote)
  Google — *June 2020-Present*
- **TockOs: Embedded Operating System in Rust** — Stanford, CA
  Associate Professor Phil Levis, Stanford Information Networks Group — *Jan 2020-Present*
  - **Clustering Pipeline**: Developing rust kernel code to support usage of the peripheral QDEC (quadrature decoder), which is present in Nordic 5x boards
- **Esper Video Analytics Project** — Stanford, CA
  Associate Professor Kayvon Fatahalian, Stanford Computer Science Department — *June 2019 - Present*
  - **Clustering Pipeline**: Used Python to create a clustering pipeline with two steps:The first step is a machine learning model that uses k-means clustering to create n clusters of similar pictures of a particular individual. The second step is manual clustering, where a human merges, deletes, or splits clusters accordingly. This step further vets the clusters and ensures the accuracy of the data being displayed.
  - **Data Processing and Visualization**:
    - Used both Matplotlib and Javascript interfaces to display results of the clustering in a human readable form. The interface currently uses a combination of bar charts, scatterplots, heatmaps, and tables to depict the data.
    - Currently working on evaluating results and determining how best to disseminate the information.
- **Radar System Analysis** — Stanford University
  Associate Professor Dustin Schroeder, Stanford Radio Glaciolgy Lab — *Jan. 2019 - Present*
  - **Software Defined Radio (SDR) Bandwidth Analysis**: Performed a series of analyses on B-200 mini-i SDR to determine whether the advertised and observed bandwidths of the device were the same. Results determined the bandwidths differed, with the experimental bandwidth lower than the advertised one. This analysis was part of a larger investigation to determine the usability of SDRs for radioglaciology research.

Extracurricular Organizations

- **Applied Cybersecurity Club** — Stanford, CA
  External Communications Officer, Competition Team Member — *Jan. 2019 - Present*
  - **Leadership**: Responsible for organizing and leading outreach events (workshops, speaker events), setting up club blog, and managing club's online presence (website, YouTube, Twitter)
  - **Competitions**: Responsible for leading the Linux subset of Stanford's 2019 Collegiate Cyber Defense Team. Member of Stanford's Collegiate Penetration Testing Team for the 2019 year. Competition team duties include leading technical demonstrations and attending competition trainings.

Workshops and Publications

- **International Glaciology Symposium (IGS)**: Presented the poster *Producing Multi-Decadal Observations of Grounding Line Change in East Antarctica with Archival Radar Data* at the IGS poster sessions
- **CURIS Poster Session**: Presented the poster *Do the Images Used by Cable TV News Channels Introduce Bias?* at Stanford's Computer Science Undergraduate Research Internship (CURIS) Poster Session

Honors and Awards

- **2019 Western Regional Collegiate Cyber Defense Competition**: 1st Place
- **2019 National Collegiate Penetration Testing Competition**: 1st Place

Programming Skills

- **Languages (Ordered by Experience)**: C++, C, Rust, Python, JavaScript, Java
- **Tools (Ordered by Experience)**: Data-Driven Documentation (D3.js), Spike Signal Analyzer Software, VSG25A Signal Generator Software, Octave
- **Other Interests**: Violin Performance, Music Composition, Piano Performance, Chamber Music, Music Volunteering