

Lauren Marsh

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RESEARCH OBJECTIVE

Investigate how tactile interaction modalities can improve performance of interactive document clustering applications. Areas of interest: **Human-Computer Interaction, Data Visualization, Human-Centered Artificial Intelligence, Cognitive Science, Machine Learning**

EDUCATION

University of Colorado Boulder

BS in Applied Mathematics, Minor in Statistics

Boulder, CO

Graduating May 2022

Relevant Coursework: Numerical Analysis, Data Structures, Applied Regression, Statistical Learning, Matrix Methods and Applications, and Introductory Courses in Linguistics, Significant coursework in Aerospace Engineering

RELEVANT EXPERIENCE

Research Assistant

VisuaLab

June 2021 – Present

ATLAS Institute, CU Boulder

- Worked closely with Matt Hong of Visualab and advised by Danielle Szafr on NSF funded Data Visualization systems project
- Created prototype for web-based qualitative research tool powered by machine learning
- Developed application using Svelte and Carbon Design Framework for the user interface and Flask for the API
- Utilized statistical techniques to leverage human domain expertise in document clustering algorithm (python)
- Implemented both existing and novel data visualizations using d3.js to improve functionality and foster trust between machine and user
- Prototyped visualizations using Observable notebooks
- Partially funded by University of Colorado Boulder Engineering Excellence Fund over the summer of 2021 (June - August) through the CU SPUR program
- Attended seminars on academic research and gave research presentation at the end of the summer as a part of the CU SPUR program

Quality Assurance Intern

ai-one inc

Summer 2019

San Diego, CA

- Performed quality assurance testing and data cleaning for machine-learning based data analytics dashboard
- Performed agent training for research-focused topic modeling application
- Learned to adapt to a start-up environment, gained valuable teamwork and time-management skills

COMPETITIONS & AWARDS

COMAP MCM/ICM Outstanding Winner

Feb 2021

- Model development involved semi-supervised learning with K-means clustering to develop object recognition with small training set, regression analysis for textual data, and understanding of species spread models to create additional limiting parameters
- Executed model development and deliverable of a 25 page report over the course of 99 hours with a team of three students
- One of 26,112 international teams to participate, One of 17 teams designated outstanding winners
- Paper received the **COMAP Scholarship award, MAA award and SIAM award**

LEADERSHIP EXPERIENCE

Co-Lead | *Cobra Rocketry - University of Colorado Boulder*

Jan 2017 – Sep 2018

- Developed organizational structure to maximize efficiency and communication between teams, including technical documentation structure, meeting minutes requirement, and deliverable schedule
- Formed high level project goals and performed tasks such as final project approval and grant writing
- Previously **Propulsion Sub-Team Lead** from Jan 2016 - Dec 2016

PROJECTS

Steepest Descent vs the Conjugate Gradient Method

Spring 2021

- Cumulative project in Numerical Analysis course sequence
- Performed literature review, method derivation, and convergence analysis to determine the most efficient use cases for Conjugate Gradient method as a linear solver
- Worked on a team of two to develop a written report and gave a final presentation of our work

TECHNICAL SKILLS

Languages: Python, R, C++, Javascript, HTML/CSS, Matlab

Frameworks/Packages: Svelte, d3.js, Carbon Design Framework, numpy, scipy, pandas

Developer Tools: Git, VS Code, Anaconda, jupyter

REFERENCES AVAILABLE UPON REQUEST
