

# Cassidy All

cassidy.all@colorado.edu • 720-526-8390 • cassitude.github.io

Skilled interdisciplinary researcher/data scientist with experience building scalable machine learning systems & high-performance development pipelines, dataset creation/curation, and statistical modeling.

## Education

University of Colorado, Boulder | GPA 3.61 | Expected: May 2026

BS, Applied Mathematics | BS, Statistics | BS, Information Science | Minor, English

Relevant Courses: Recommender Systems, Fair Machine Learning, Information Exploration, PDEs, Markov Processes & Monte Carlo Simulation, Random Matrix Theory, Applied Probability, Mathematical Statistics

Awards: Computing Corporate Affiliates Program — Google Corporate Scholar, Spring 2024

## Skills

Languages: Python, R, SQL, MATLAB, C++, JavaScript, React

Software: AWS, S3, Azure, Snowflake, Tableau, PowerBI, Excel

Packages: TensorFlow, Keras, PyTorch, numba, jit, pandas, seaborn, matplotlib, sklearn, causalml, gensim, top2vec, numpy, tidyverse, selenium

## Experience

### Research Assistant | Recommender Systems

May 2023 — Present

That Recommender Systems Lab | University of Colorado, Boulder | Boulder, CO

- Designed key components of a novel experimental machine learning recommendation system in Python.
- Generated high-performance evaluation and hyperparameter tuning pipelines that reduced compute time from hours to seconds.

### Research Assistant | Natural Language Processing (NLP)

August 2023 — May 2024

Studio Lab | University of Colorado, Boulder | Boulder, CO

- Implemented cutting-edge transformer, NLP, and retrieval-augmented generation (RAG) methods on a unique historical corpus of Early Modern English plays.
- Researched word-sense disambiguation problems, knowledge editing/pre-training transformers, and zero-shot classification with sparse textual data.

### Data Science Fellow | Dataset Creation & Causal Inference

June 2023 — September 2023

Campaign Zero | New York, NY

- Built scalable data pipelines, ingested and normalized data, and developed automated auditing.
- Utilized a wide variety of statistical estimators for causal inference and prediction with respect to an impact analysis of municipal housing policy—collected, cleaned, and modeled data from across the country.
- Created a novel record linkage model, **improved key metrics** (precision, L2 norm, etc.) **by >50%**.

## Publications

† **Data Generation via Latent Factor Simulation for Fairness-aware Re-ranking.** *FACCTRec Workshop on Responsible Recommendation*, held at RecSys 2024. Available at [arXiv:2409.14078](https://arxiv.org/abs/2409.14078).

\* **Social Choice for Heterogeneous Fairness in Recommendation.** Late-breaking Results, *RecSys 2024*. Available at [doi.org/10.1145/3640457.3691706](https://doi.org/10.1145/3640457.3691706).

‡ **Dynamic Fairness-aware Recommendation Through Multi-agent Social Choice.** *ACM Transactions on Recommender Systems*. 2024. Available at [doi.org/10.1145/3690653](https://doi.org/10.1145/3690653).

† **Exploring Social Choice Mechanisms for Recommendation Fairness in SCRUF.** *FACCTRec Workshop on Responsible Recommendation*, held at RecSys 2023. Available at [arXiv:2309.08621](https://arxiv.org/abs/2309.08621).

Notes: † (second author), \* (third author), ‡ (other)