

# Alexander Miller

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## Research Interests

I'm interested in structured prediction, probabilistic graphical models, and the development of machine learning methods which can integrate large amounts of data from heterogeneous sources. I'm particularly interested in applying machine learning methods that can leverage relational structure to problems in biology and medicine.

## Academic History

### **University of California, Santa Cruz**

B.A., Computer Science

- 3.89 cumulative GPA
- Dean's Honors 5 quarters

**Santa Cruz, CA**

*Graduating March 2021*

## Research Experience

### **LINQS Member**

LINQS

**Santa Cruz, CA**

*June 2020 - Present*

- Conduct research under Professor Lise Getoor in collaboration with other LINQS members

### **LINQS Student**

LINQS Learning Lab

**Santa Cruz, CA**

*September 2019 – May 2020*

- Studied the work being done at LINQS and the general field of statistical relational learning (SRL)
- Conducted research in this field alongside other LINQS Learning Lab students and LINQS members

## Publications

Alex Miller, Naum Markenzon, Varun Embar, and Lise Getoor. "Collective Bio-Entity Recognition in Scientific Documents using Hinge-Loss Markov Random Fields." *International Workshop on Mining and Learning with Graphs (MLG)*. 2020.

## Skills

- Python, Pandas, Scikit-learn
- C++, C
- UNIX/Linux

## Industry Experience

### **Software Development Intern**

Ourglass TV

**Campbell, CA**

*June 2017 – July 2017*

- Developed applications with Node.JS and Angular 1.0 for out-of-home televisions.

## **Projects**

- Collective Bio-entity Recognition
  - Utilizes PSL, a scalable, probabilistic programming language, to collectively disambiguate gene and protein mentions in scientific abstracts
  - Published at *MLG '20*
- PSL-GWAS
  - Utilizes PSL to perform genome-wide association studies through collective reasoning
- Online Collective Inference
  - Extends PSL, which is used to define instances of a class of graphical models called hinge-loss Markov Random Fields, to perform online collective inference