

# HARRISON PIELKE-LOMBARDO

## Computational Biologist

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12 May 1995



## EXPERIENCE

### Computational Biologist

#### University of Colorado, Anschutz Medical Campus

2016 – 2022

Aurora, CO

- Thesis title: Schematization of biological mechanisms using network alignment and computational analogy for hypothesizing about disease mechanisms and their interventions.
- Managed multiple, interconnected computational projects across different teams from planning to publication.
- Communicated with technical and non-technical audiences.
- Developed interpretable, symbolic artificial intelligence and machine learning methods for identifying drug-targets in text and performing inductive reasoning about drug-disease mechanisms.
- Maintained sustainable, open software development practices.

Knowledge graphs

Artificial intelligence

Biomedical data science

## PROJECTS

### Schematization of biological mechanisms using structural, semantic, and causal properties

- Developed algorithmic approaches in Clojure and Python for extending analogical reasoning of complex networks representing biological knowledge.
- Merged and harmonized large biomedical knowledge graphs.

### Knowtator: Concept/relation annotation for Protégé

- Deployed a WYSIWYG plugin for ontology development and text annotation that includes interactive graph visualization for textual features.
- Incorporated user feedback in several feature updates.

### Bootstrapped relation extraction using word embeddings and dependency paths

- Developed a novel bootstrapping relation extraction approach in Clojure that creates human-interpretable syntax patterns from dependency paths and word embeddings
- Performance optimized with GPU accelerated matrix operations.
- Evaluated the approach on a large corpus of biomedical text on its ability to identify drug-target relationships.

## EDUCATION

### Master of Science in Biomedical Sciences and Biotechnology

#### University of Colorado, Anschutz Medical Campus

2016 – 2022

Aurora, CO

### Bachelor of Science in Applied Mathematics

#### University of Colorado

2013 – 2016

Boulder, CO

## SKILLS

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- Python
- Java
- JavaScript
- Clojure
- Clojurescript
- C++
- NumPy
- Pandas
- Reagent
- Re-frame
- Dascript
- Datomic
- NLTK
- R
- MATLAB
- HTML
- CSS
- Git
- GitHub
- CI/CD
- AWS
- Kubernetes
- Natural language processing
- Statistics
- Machine learning
- Semantic web
- Artificial intelligence
- SQL
- SPARQL
- BigQuery
- Redis

## NOTE

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References available upon request. Please see my GitHub page (@tuh8888) for my software projects as well as my contributions to various open-source projects.