

HARRISON PIELKE-LOMBARDO

Senior Software Engineer

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EXPERIENCE

Senior Software Engineer

📅 Sep 2022

Peruse Technology LLC

📍 Remote

- Designed and implemented backend `REST` and `GraphQL` APIs written in `Clojure` which handle high-volume requests from both external and internal clients, manage machine learning data, and integrate with external services and APIs.
- Manage backend databases and services including `Datomic` and `ElasticSearch` hosted on `AWS`.
- Support and maintain relationships with key existing and prospective clients by understanding their needs and communicating progress regularly.

Computational Biologist

📅 Aug 2016 – Aug 2022

University of Colorado, Anschutz Medical Campus

📍 Aurora, CO

- Managed interconnected computational projects written in `Python`, `Java`, and `Clojure` across 4+ teams through consistent communication and leadership
- Produced 6 publications, 4 dataset releases, and 5 package releases.
- Developed interpretable, symbolic `Artificial Intelligence`, `Machine Learning`, and `Natural Language Processing` methods for identifying drug-targets in text and performing inductive reasoning about drug-disease mechanisms using a `Knowledge Graph` constructed from 10 biomedical ontologies and 10 databases containing 1 trillion triples.

PROJECTS

Schematization of biological mechanisms from structural, semantic, and causal properties 📅 2017 – 2022

- Conceptualized and tested algorithmic approaches in `Clojure` and `Python` for extending analogical reasoning of complex networks representing biological knowledge. Merged and harmonized large biomedical knowledge graphs represented in `RDF`, `Datomic`, and `SQL` formats.

Knowtator: Concept/relation annotation for Protégé

📅 2016–2022

- Deployed a WYSIWYG `Java` plugin for ontology development and text annotation that includes interactive graph visualization for textual features. It was used to annotate over 100k concept and relation annotations. Later became a `Clojurescript` web application. `CI/CD`: Incorporated user feedback in several feature updates.

Bootstrapped relation extraction using word embeddings and dependency paths 📅 2016–2019

- Automated relation extraction by implementing a novel bootstrapping approach in `Clojure` that creates human-interpretable syntax patterns from dependency paths and word embeddings. Performance optimized with GPU accelerated matrix operations. Improved precision for relation extraction for drug-targets from biomedical texts by 10%.

EDUCATION

Master of Science in Computational Bioscience

📅 2016 – 2022

University of Colorado, Anschutz Medical Campus

📍 Aurora, CO

Bachelor of Science in Applied Mathematics

📅 2013 – 2016

University of Colorado

📍 Boulder, CO

- Minor in Computer Science
- Minor in Biochemistry

SKILLS

- Clojure/Script
- Java
- Python
- AWS
- ElasticSearch
- Natural language processing
- Machine learning
- Semantic web
- Artificial intelligence
- Databases
- ReST/GraphQL