Thomas Porter

CV • January 11, 2024

✉ thomasporter2019@gmail.com thomasporter522.github.io thomasporter522

Education

Aug 2019 - Dec 2022 • **BA in Mathematics & Computer Science** • Cornell University

GPA: 4.041/4.3. Cum laude in math. Classes in functional programming, programming language theory, compilers, formal verification, logic, machine learning, and linguistics.

Research

May 2023 - Present • **Hazel Polymorphism Research** • Future of Programming Lab, UMich
With Adam Chen, Cyrus Omar

Worked on developing and mechanizing the theory of explicit polymorphism in Hazel. Used the Agda proof assistant. Hazel

Jun 2022 - Sept 2022 • **PDG Divergence Research** • Cornell University
With Oliver Richardson, Joseph Halpern

Explored alternative definitions of Probabilistic Dependency Graph inconsistency using different statistical divergences. PDG's

Jan 2022 - May 2022 • **AI POWER-Seeking Research** • AI Safety Camp
With Tomasz Korbak, Samuel King, Ben Laurense, Alex Turner

Worked to generalize the original POWER-Seeking Theorem to partially observable environments, modeled as Partially Observable Markov Decision Processes.

Nov 2021 - Oct 2022 • **Causal Intention Research** • Cornell University
With Meir Friedenberg, Joseph Halpern

Examined the relationship between the Cohen & Levesque and Halpern & Kleiman-Weiner definitions of Intention by defining them both in a unified formal model.

Jun 2021 - Aug 2021 • **Information Extraction Research** • CSURP, Cornell University
With Aliva Das, Barry Wang, Claire Cardie

Wrote code to automate analysis of frequency of different error types for document-level template filling models. See corresponding publication.

Oct 2019 - Mar 2020 • **Word Vector Geometry Research** • C.Psyd, Cornell University
With Marten van Schijndel

Worked on analyzing the geometry of syntactic classes in word vector embeddings.

Publications

Automatic Error Analysis for Document-level Information Extraction from Scientific Text
Aliva Das, Xinya Du, Barry Wang, Kejian Shi, Jiayuan Gu, Thomas Porter, Claire Cardie
ACL 2022

***Polymorphism with Typed Holes**
Adam Chen, Thomas Porter, Cyrus Omar
**Draft paper. Presented at TFP 2024.*

Teaching

Fall 2020, Spring 2021 • **TA for CS 2800: Discrete Structures** • *Cornell University*
Fall 2021 • **TA for CS 3410: Computer Systems** • *Cornell University*
Fall 2022 • **TA for CS 3110: Functional Programming** • *Cornell University*

Conferences

Attended : **ICFP/PLMW 2023** • *Seattle, WA*
Attended : **MWPLS 2023** • *Ann Arbor, MI*
Presented : **TFP 2024** • *South Orange, NJ*

Programs

2021 Computer Science Undergraduate Research Program (CSURP) • *Cornell University*
2022 Summer School in Logic and Formal Epistemology • *Carnegie Mellon University*

Talks

A Rapid Introduction to Type Theory • *Splash! at Cornell, Fall 2022*
Polymorphism with Typed Holes (Presented with Adam Chen) • *TFP 2024*

Industry Experience

Jun 2020 - Aug 2020, Jan 2021 • **Machine Learning Intern** • DTech, LLC

Researched and implemented machine learning algorithms for cybersecurity anomaly detection. Used Scala, Apache Spark, and TensorFlow.