Thomas Porter

CV • June 23, 2024

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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
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*
2024 Oregon Programming Languages Summer School • *Boston 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.