Elton Pinto

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Education

M.S. in Computer Science, Georgia Institute of Technology, Atlanta, GA — August 2022 - May 2023

B.S. in Computer Science, Georgia Institute of Technology, Atlanta, GA — August 2018 - May 2022

Research Experience

Graduate Research Assistant, Habanero Lab *advised by Vivek Sarkar* — August 2022 - present

Extending AutoMPHC, a compiler that automatically parallelizes Python programs for distributed heterogeneous computing using the Ray runtime, to support intra-node parallelism using OpenMP.

Collaborator, Microsoft Research *with Daan Leijen* — July 2022 - present

Replacing OCaml's garbage collector with the Perceus reference counting system.

Undergraduate Research Assistant, TINKER Lab *advised by Tom Conte and Jeff Young* — August 2020 - May 2022

Wrote a space-efficient implementation of the Quantum Verification of Matrix Products algorithm and benchmarked its resource usage, simulation time, and transpilation time.

Work Experience

Software Engineering Intern, Meta, Privacy Language Experience (PLeX) team — May 2022 - August 2022

- Built a pipeline for incrementally ingesting over 100M records of dynamic Hack callgraph data into stacked Glean databases
- Developed a distributed callgraph artifact generation system that feeds into a Hack typed-AST static analyzer for detecting data leaks through global variables
- Optimized Glean query using derived predicates, resulted in 280x speedup
- Incrementally ported system from Python to Rust employing data-level parallelism, resulted in 4.5x speedup

Software Engineering Intern, Meta, PyTorch Dev Infra team — May 2021 - August 2021

- Setup infrastructure to build, test, and deploy a fork of clang-tidy in PyTorch CI using Docker and GitHub Actions
- Added support for the `max-tokens` pragma in clang-tidy which alerts users when the number of tokens exceeds a limit
- Authored a clang-tidy check that detects infinite loops caused by integer/floating-point overflow

Software Engineering Intern, NCR, Innovation Lab — May 2020 - August 2020

- Developed a subscription recommendation model using backtesting
- Expanded the consumer profile API to manage and isolate profiles across merchants

Software Engineering Intern, NCR, Emerald POS Testing team — May 2019 - August 2019

- Worked with a global team to certify the Emerald POS product release for Northgate
- Sped up the test suite by 75% using profile-guided optimization

Teaching assistantship, Georgia Institute of Technology, College of Computing

- CS 3210: Design of Operating Systems — Spring 2022 (Head TA), Fall 2021, Spring 2021
- CS 2110: Computer Architecture and Organization — Fall 2020, Spring 2020
- CS 1301: Intro to Computing — Fall 2019

Projects

camlivg: IconVG decoder and renderer in OCaml

meow: Implementation of a gradually typed lambda calculus in OCaml

OSS contributions: nushell, PyTorch, GHC

Skills

Languages: OCaml, Rust, Python, JavaScript, C, Haskell, Coq, Java, assembly

Technologies: git, Linux, Docker, web components, FRP, posits

Interests: Compilers, programming languages, formal methods, systems programming, quantum computing