Enrico Zandomeni Borba

Information

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Interests
Type Systems
Theorem Provers
Human-Computer Interfaces
Computer Science Education

Software

Infrastructure
Nix, Docker, Kubernetes,
Digital Ocean, AWS, GCP

Stacks
PostgreSQL, Redis, React,
Svelte, TensorFlow, PyTorch,
Keras

Coursework

Computer Science
Type Systems
Complexity Theory
Decidability & Tractability
Operating Systems
Machine Learning
Graphics

Mathematics
Information Theory
Model Theory
Abstract Algebra
Bayesian Inference
Game Theory
Real Analysis

Interdisciplinary
Biomolecular Computation
Biological Data Analysis

Languages

Fluent
English, Português

Proficient
Spanish

Education

California Institute of Technology   (2019)
B.S. Computer Science

Work Experience

Freelance / Consultant [Rust, Python, Docker]   (Jan 2023 - Present)
Contracted at a variety of companies (CTFd, Sema Software, Taqtile) working on a variety of custom software, feature development, codebase maintenance, and customer support.

FOSSA SWE [Typescript, PostgreSQL, Rust, AWS]   (Oct 2020 - Jan 2023)
Tech lead of a UI revamp increasing page load and API response times by over 50x through a DB schema redesign. Led the development and customer feedback loop of an upcoming AOSP Monorepo product. Improved client-side scanning and UI of Monorepo by 30x through DB schema changes, algorithmic improvements, and cache pre-warming.

Google SWE [C++, BigQuery, Python, Flume]   (Sep 2019 - Sep 2020)
Worked on the Interactive Questions team under Search. Improved the freshness of answers, created an automatic pipeline to initialize and monitor data, and built a cache system to dramatically speed up pipeline reruns.

Van Valen Lab Researcher [PyTorch, k8s]   (Sep 2018 - Jun 2019)
Used Machine Learning (CNNs & NNs) to perform segmentation and cell tracking on movies of biological cells. Greatly improved the cell tracking model accuracy on detecting divisions and created a (now patented) data curating tool (DeepCell Label) to ease the manual correction of incorrect outputs. Contributed to DeepCell Kiosk, published in Nature Methods.

Mitsubishi SWE Intern [Python, OpenCV, Embedded]   (Summer 2018)
In Osaka, Japan. Worked on the systems division to create the infrastructure for sensor data collection and processing inside next generation vehicles. Constructed a model to detect drowsiness and impairment in drivers using mmWave sensors (AWR1642), camera, and driving data.

Projects & Languages

Formalization [Lean]
The first to formalize Buffon's Needle in Lean. Wrote a formally verified Affine Lambda Calculus normalizer. In the process of formalizing Rautenberg's *A Concise Introduction to Mathematical Logic*.

Sievvy [Rust, PostgreSQL, BigQuery]
An affordable polyglot dependency auditor. Detects CVEs, licenses, and stale/old versions of dependencies. Supports JS, Python, and Rust.

Intuitive [Rust]
A library for creating text-based user interfaces. Inspired by React and SwiftUI, with features resembling functional components, hooks, and a declarative DSL.

Expert
Rust, Nix,
Python,
PostgreSQL

Advanced
Lean, TypeScript,
Golang, OCaml,
Bash, Swift, C++,
C

Basic
Haskell, Elixir,
Java, HHVM, R