Sean McLaughlin

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Work Experience

October 2012 - present, Google
Software engineer for Google Maps. I work on the machine learning team responsible for clustering local businesses with data from disperate sources.

August 2010 - October 2012, Jane Street Capital
Quantitative research and technology group. I worked on a distributed real-time order marking system.

Summer 2009, National Science Foundation
Taught courses on functional programming and theorem proving, Hanoi, Vietnam.

Summer 2007, Microsoft/INRIA
I worked on the formalization of Galois Theory in the Coq proof assistant.

Summer 2004, Intel
I worked on theorem-prover-based static analysis in the internal reFLect programming language, used by Intel to verify hardware designs.

Summer 2002, IBM
I wrote a compiler for an XML-based database query language.

June 2001 - July 2002, Eventmonitor, Inc.
Java programmer at a financial software startup.

Selected Publications

The Dodecahedral Conjecture
Solves a problem in discrete geometry originally posed in 1943.
Journal of the American Mathematical Society, 2010

Efficient Intuitionistic Theorem Proving with the Polarized Inverse Method
Conference on Automated Deduction, 2009

Imogen: Focusing the Polarized Inverse Method for Intuitionistic Propositional Logic
Logic for Programming, Artificial Intelligence and Reasoning, 2008

An interpretation of Isabelle/HOL in HOL Light
International Joint Conference on Automated Reasoning, 2006

A Proof Producing Decision Procedure for Real Arithmetic
Conference on Automated Deduction, 2005

Open Source Projects

omake-mode
An Emacs interface to the OCaml compiler (`https://github.com/seanmcl/omake-mode`)

Imogen
A theorem prover for intuitionistic logics (`https://github.com/seanmcl/imogen`)

Education

2004 - present, Carnegie Mellon University
Ph.D. in Computer Science

2002-2004 - New York University
Masters in Computer Science

1995-2000 - University of Michigan
Bachelor of Science, Mathematics
Bachelor of Musical Arts, Clarinet performance

1994-1995 - Interlochen Arts Academy

Awards

2000 - AMS, MAA, SIAM Morgan Prize for Outstanding Mathematics Research

Teaching experience

Carnegie Mellon University
Teaching Assistant in functional programming and constructive logic.

Courant Institute, New York University
Teaching Assistant in algorithms, programming languages, and artificial intelligence.

Languages

Used daily
C++, Python, Bash, Emacs Lisp

Used regularly
OCaml, Standard ML, LaTeX, Haskell

Passing knowledge
Javascript, HTML, CSS, Prolog