Eleftherios Ioannidis

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Education

Current — PhD in Computer Science, *University of Pennsylvania*, Philadelphia, PA
Research: *Research in formal verification of computer systems.*
Second-year PhD, using the Coq proof-assistant for verified compilers.
Distributed systems language formalization and implementation. Graduation in 2025.
Advisors: Sebastian Angel, Steve Zdancewic

Jan '19 — Master's in Engineering, *MIT*, Cambridge, MA
Thesis: *Extracting and optimizing low-level bytecode from high-level verified Coq.*
Advisor: Frans Kaashoek, Nickolai Zeldovich, Adam Chlipala, CSAIL

Jun '15 — Bachelor's in Computer Science, *MIT*, Cambridge, MA
Thesis: *Parallel optimizations for the Halide DSL language.*
Advisor: Prof. Saman Amarasinghe, CSAIL

Research

Nov 2021 — Normalization-by-evaluation and Metaprogramming with PHOAS.
POPL SRC 2022 (under review), Philadelphia, PA

Oct 2021 — Efficient Representation of Numerical Optimization Problems for SNARKs,
with Sebastian Angel, Andrew J. Blumberg and Jess Woods.
(under review).

Mar 2020 — Scala eDSLs for domain-specific business logic,
Northeast Scala Symposium (NEScala 2020), Brooklyn, NY (online).

Apr 2019 — MCQC: Extracting and optimizing formally verified code,
NASA Formal Methods Symposium (NFM 2019), Houston, TX.

Work Experience

Mar '19 - Sep '20 — Investment Engineer at Bridgewater Associates, Westport, CT
Developed trading algorithms, risk-controls, designed and implemented domain-specific programming languages for financial data science embedded in Scala.

May '16 - Oct '17 — Software Architect at UnifyID, San Francisco, CA
Designed and implemented the back-end for implicit authentication, including end-to-end encryption protocols, load-balancing, analytics, as well as distributed machine-learning infrastructure.

Sep '15 - May '16 — Security Engineer at Apple, Cupertino, CA
FairPlay and DRM group
Application Security, worked with the LLVM Compiler in reverse engineering mitigation.

Software Engineering

Skills: Programming Languages, Formal Verification, Security, Operating Systems,
Distributed Systems, Compilers, High Performance Engineering.
Languages: Haskell, Coq, OCaml, Scala, C/C++, Go, Javascript.
Software: Linux, Docker, Kubernetes, SQL, MongoDB, GIT, LLVM.