

# Eleftherios IOANNIDIS

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## EDUCATION

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**CURRENT** PHD IN COMPUTER SCIENCE, *University of Pennsylvania*, Philadelphia, PA  
**Research:** *Research in formal verification of distributed systems.*  
Second-year PhD, using the Coq proof-assistant for verified compilers, distributed systems language formalization and implementation. Graduation in 2025.  
**Mentorship:** DeepSpec REU mentor, Software foundations (CIS500) TA  
**Advisors:** Sebastian ANGEL, Steve ZDANCEWIC

**JAN '19** MASTER'S IN ENGINEERING, *MIT CSAIL*, Cambridge, MA  
**Thesis:** *Extracting and optimizing low-level bytecode from high-level verified Coq.*  
**Mentorship:** Computer Security (6.858) TA, Operating System (6.828) TA  
**Advisor:** Frans KAASHOEK, Nickolai ZELDOVICH, Adam CHLIPALA

**JUN '15** BACHELOR'S IN COMPUTER SCIENCE, *MIT CSAIL*, Cambridge, MA  
**Thesis:** *Parallel optimizations for the Halide DSL language.*  
**Advisor:** Saman AMARASINGHE

## RESEARCH

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**NOV 2021** Normalization-by-evaluation and Metaprogramming with PHOAS.  
POPL SRC 2022, Philadelphia, PA

**OCT 2021** Efficient Representation of Numerical Optimization Problems for SNARKs,  
with Sebastian Angel, Andrew J. Blumberg and Jess Woods.  
USENIX Security 2022, Boston, MA.

**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

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**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. Taught Scala to about 100 new engineers.

**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 load-balancing, analytics, redundancy and distributed machine-learning microservices.

**SEP '15 - MAY '16** Security Engineer at APPLE, *FairPlay group*, Cupertino, CA  
Application Security, LLVM Compiler extensions for cryptography, reverse engineering mitigation.

## SOFTWARE ENGINEERING

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**Skills:** Programming Languages, Formal Verification, Security, Compilers.  
**Languages:** Scala, Python, C/C++, Haskell, Coq, OCaml, Go, Javascript.  
**Software:** Linux, Docker, AWS, Dafny, Z3, SQL, Git, LLVM, .