Ben Mariano

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Education

University of Texas at Austin, Austin, Texas   2019 – Present
- PhD, Department of Computer Science with advisor Isil Dillig

University of Maryland, College Park, Maryland   2013 – 2019
- B.S., Department of Electrical and Computer Engineering, GPA: 3.76
- M.S., Department of Computer Science with advisor Jeff Foster, GPA: 4.0

Research

University of Texas at Austin, Austin, Texas   2019 – Present
Research Assistant for Dr. Isil Dillig (UToPiA Lab)
- Using neural program synthesis to solve source-to-source translation problems
- Created program synthesizer for summarizing loops in smart contracts
- Helped design type system for detecting overflow vulnerabilities in smart contracts
- Designed DSL for specifying liveness properties of smart contracts

Max Planck Institute, Kaiserslautern, Germany   Summer 2019
Intern for Dr. Maria Christakis
- Designed optimization methodology for abstract interpreter parameters
- Performed empirical study on real-world programs to measure precision/performance tradeoffs

University of Maryland, College Park, Maryland   2017 – 2019
Research Assistant for Dr. Jeff Foster (PLUM Lab)
- Developed and tested new models of the Java Standard Library for synthesis optimization
- Experimented with new axiomatic programming paradigms for program synthesis

Work Experience

University of Texas at Austin, Austin, Texas   Fall 2019
Teaching Assistant for Discrete Math with Dr. Isil Dillig
- Graded homework, taught weekly discussion, and helped design examination problems

University of Maryland, College Park, Maryland   Spring 2019
Co-teacher for Functional Pearls (http://www.cs.umd.edu/class/spring2019/cmsc388F/) with Cameron Moy
- Created and taught seven lectures on advanced functional programming topics

University of Maryland, College Park, Maryland   Fall 2017
Teaching Assistant for Advanced Functional Programming with Dr. Niki Vazou
- Helped design and grade Haskell homeworks, designed lecture material, and held office hours

Prime Solutions, Columbia, Maryland   Summer 2015, Summer 2016
Software Engineering Intern
- Designed, developed, and tested simulation of malicious protocols in C and Python (2016)
- Automated analysis of local Wi-Fi traffic to determine device-specific information (2015)

Awards

- **POPL PLMW Travel Scholarship** — 2019
- **University of Maryland Honor's College Member** — 2013-2017
- **University of Maryland Dean's Scholarship** — 2013-2017
- **University of Maryland Dean's List** — 2013-2017

Publications

Automatically Tailoring Abstract Interpretation to Custom Usage Scenarios (CAV 2021)
Muhammad Numair Mansur, **Ben Mariano**, Maria Christakis, Jorge A. Navas, Valentin Wuestholz

SmartPulse: Automated Checking of Temporal Properties in Smart Contracts (S&P 2021)
Jon Stephens, Kostas Ferles, **Ben Mariano**, Shuvendu K. Lahiri, Isil Dillig

Demystifying Loops in Smart Contracts (ASE 2020)
Ben Mariano, Yanju Chen, Yu Feng, Shuvendu K. Lahiri, Isil Dillig

Program Synthesis Using Algebraic Library Specifications (OOPSLA 2019)
Ben Mariano, Josh Reese, Siyuan Xu, ThanhVu Nguyen, Xiaokang Qiu, Jeffrey S. Foster, Armando Solar-Lezama

SolType: Refinement Types for Solidity (in review)
Bryan Tan, **Ben Mariano**, Shuvendu Lahiri, Isil Dillig, Yu Feng

Imperative-to-Functional API Translation via Neurosymbolic Program Synthesis (in preparation)
Ben Mariano, Yanju Chen, Yu Feng, Greg Durrett, Isil Dillig