

# DARIUS FOO

darius.foo.tw@gmail.com | dariusf.github.io

## RESEARCH INTERESTS

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Automated verification, program logics, distributed systems

## EDUCATION

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### National University of Singapore

PhD in Computer Science (CAP: 4.08/5.0)

2020 – Present

- Advised by Prof. Wei-Ngan Chin
- Working on topics related to the verification of OCaml programs
- Accepted to Graduate Tutorship-PhD Scheme

### National University of Singapore

Bachelor of Computing (Honours) in Computer Science (CAP: 4.3/5.0)

2012 – 2016

- Focus areas: Programming Languages, Computer Graphics and Games
- Thesis: Higher-order Debugging and Logging for OCaml

## EXPERIENCE

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### Senior Software Engineer

2016 – 2020

SourceClear, Veracode by acquisition

- Worked on the SourceClear Agent, a tool which uses a combination of static analysis and instrumentation to discover and automatically upgrade library dependencies from CI/CD pipelines.
- Authored short papers on the following tools:
  1. SGL, a domain-specific graph query language for representing security vulnerabilities.
  2. Update Advisor, a scalable static analysis for detecting breaking changes, to perform automated library upgrades safely.
  3. Sapling, optimizing story assignments for SAFe PI Planning using answer set programming.

## PROJECTS

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**ppx\_interact** interactive breakpoints via the OCaml toplevel à la pdb/pry

**ppx\_deriving\_unparse** derives *unparsing* functions, which render properly-parenthesised expressions

## PUBLICATIONS

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### Staged Specifications for Automated Verification of Higher-Order Imperative Programs

Under submission

Darius Foo, Yahui Song, Wei-Ngan Chin

### Automated Temporal Verification for Higher-order Algebraic Effects

APLAS 2022

Yahui Song, Darius Foo, Wei-Ngan Chin

### Tracing OCaml Programs

OCaml 2022

Darius Foo, Wei-Ngan Chin

### Protocol Conformance with Choreographic PlusCal

TASE 2023

Darius Foo, Andreea Costea, Wei-Ngan Chin

## SERVICE

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Subreviewer

CAV 2022, POPL 2022

Artifact Evaluation Committee

ESOP 2022

Student Volunteer

PLDI 2021, SPLASH 2022

## TEACHING

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Programming Methodology

2013-2015, 2021-2023

Software Engineering

2016, 2022

Database Systems

2020, 2022