

# Orpheas van Rooij – Curriculum Vitae

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## About Me

My main research interests are in effects handlers, type systems, program verification, functional programming, proof assistants and programming language research in general.

## Education

- 2024-** PhD in Computer Science (Ongoing) - University of Edinburgh  
*Topic:* Algebraic Effects & Handlers semantics and type systems
- 2021-2024** MSc in Software Science - Radboud University  
*Grade:* Cum laude  
*Thesis:* A Substructural Type and Effect System  
*Main Courses:* Type Theory & Coq, Category Theory, Coalgebra, Compiler Construction, Semantics and Domain Theory, Program Verification with Types & Logic.
- 2018-2021** BSc in Computer Science - University of Cyprus  
*Grade:* 9.03/10 (Excellent)  
*Thesis:* An Instrumentation Approach To Web Fuzzing

## Research Projects

- **A Substructural Type and Effect System**  
*Masters Thesis*  
Formalising a substructural (affine) type and effect system in Coq that tracks whether continuations are one- or multi-shot for an OCaml-like language with effect handlers and mutable state.
- **A type-theoretic approach to Absent Argument Analysis**  
*Internship Project*  
Providing a type-theoretic description of a form of absent argument analysis in a first-order Simply Typed Lambda Calculus.
- **webFuzz: Grey-box Fuzzing for Web Applications**  
*In Proceedings of the 26th European Symposium on Research in Computer Security (ESORICS)*  
Design, implementation and evaluation of webFuzz, a gray-box fuzzing prototype for discovering vulnerabilities in web applications.

## Work Experience

- Jan 2023 - Jun 2024** Radboud University  
*Teaching Assistant*  
Assignment correcting and assisting in tutorial sessions for the BSc course Software Verification, the BSc course Complexity, and the MSc course Advanced Programming.

**Mar 2021 -** Networks Research Laboratory, Dept. of Computer Science, UCY  
**Aug 2021**     *Software Developer*

**Jun 2019 -** Novatex Solutions Ltd.  
**Jul 2021**     *Software Developer*

## Professional Activities

- **POPL 2024**  
*Awarded 1st prize at the ACM Student Research Competition, London, UK*
- **ESORICS 2021**  
*Research Paper Presenter, Virtual Event*
- **Advanced Functional Programming in Haskell**  
*Participant, Utrecht Summer School 2021*

## Languages and Frameworks

- Coq, Haskell, Clean, Rust, OCaml, C, Python
- Iris, iTasks, TorXakis