

# Uma Zalakain

COMPUTER SCIENTIST · SOFTWARE DEVELOPER

Glasgow

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programming language theory, concurrency theory, machine verification, type theory.

## Academic Qualifications

### University of Glasgow

PHD COMPUTING SCIENCE

Machine verification of typed process calculi.

Glasgow

2019 - present

### University of Glasgow

MSc COMPUTING SCIENCE · **WITH DISTINCTION**

Glasgow

2018 - 2019

### University of Strathclyde

BSc HONS COMPUTER SCIENCE · **FIRST CLASS HONOURS**

Awarded Andrew McGettrick prize for **outstanding performance** throughout the degree (2 recipients).

Glasgow

2014 - 2018

## Articles, Talks and Publications

### Co-Contextual Typing Inference for the Linear $\pi$ -Calculus in Agda

(**EXTENDED ABSTRACT**) UMA ZALAKAIN, ORNELA DARDHA

Extended abstract at Workshop on Type-Driven Development (TyDe) 2021

[extended abstract]

[presentation recording]

### $\pi$ with leftovers: a mechanisation in Agda

UMA ZALAKAIN, ORNELA DARDHA

In Proceedings of Formal Techniques for Distributed Objects, Components, and Systems (FORTE) 2021

[published version]

[presentation recording]

### Type-Checking Session-Typed $\pi$ -calculus with Coq

UMA ZALAKAIN, SUPERVISED BY ORNELA DARDHA

MSc Thesis, University of Glasgow, 2019

[thesis]

### Evidence-Producing Problem Solvers in Agda

UMA ZALAKAIN, SUPERVISED BY CONOR MCBRIDE

BSc Thesis, University of Strathclyde, 2018

[thesis]

## Internships and Professional Experience

### Microsoft Research Cambridge

RESEARCH INTERN

Types and Type Changing Operations for Distributed Data Structures

Cambridge

2021

### University of Edinburgh

RESEARCH ASSISTANT

RISE: a functional pattern-based data-parallel language ([rise-lang.org](http://rise-lang.org))

Edinburgh

2021

## Research Activities

2021 **PLACES** PC member

2021 **TyDe** sub-reviewer

2021 **PLDI Artifact Evaluation Committee** PC member

2021 **ICE** PC member

## Invited Talks and Participations

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### Theorem Proving with Dependent Types in Agda

FORMAL ANALYSIS, THEORY & ALGORITHMS SEMINAR, 2021

### An Introduction to Session Types

MATHEMATICALLY STRUCTURED PROGRAMMING 101 SEMINAR, 2020

### Mechanising the Linear $\pi$ -Calculus

LANGUAGES, SYSTEMS, AND DATA SEMINAR, 2020

### $\pi$ with leftovers: a mechanisation in Agda

- PROGRAMMING LANGUAGES AT THE UNIVERSITY OF GLASGOW, 2020
- VERIFICATION OF SESSION TYPES, 2020
- AGDA IMPLEMENTORS' MEETING XXXII, 2020

### Machine Verification with Agda

SEMINAR SERIES AT THE UOG, 2020

### Type-checking session-typed $\pi$ -calculus with Coq

- BEHAPI – STUDENT TALKS, LEICESTER, 2019
- SPLV – STUDENT TALKS, GLASGOW, 2019

## Tutoring and Co-Supervision

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### Co-supervision of MSc theses

- EMPIRICAL STUDY OF MECHANISED SESSION TYPES, *Di Cheng*, 2021
- TYPED OPERATIONS ON DISTRIBUTED DATA STRUCTURES, *Peng Zhao*, 2021
- ENCODING SESSION TYPES INTO THE LINEAR  $\pi$ -CALCULUS IN AGDA, *Yuan Gao*, 2021

### Co-supervision of BSc theses

- ENCODING SESSION TYPES INTO THE LINEAR  $\pi$ -CALCULUS IN AGDA, *Patryk Kaczmarczyk*, 2020
- ABALONE IN HASKELL, *Jing Lee*, 2020

### Tutoring

- CS1P, FIRST YEAR PROGRAMMING, 2021
- CS1CT, INTRODUCTION TO COMPUTATIONAL THINKING, 2020

## Honors & Awards

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2018	<b>Andrew McGettrick prize for outstanding performance</b>	University of Strathclyde (£400)	Glasgow
2017	<b>Best overall third year student</b>	Baillie Gifford (£200)	Glasgow
2014–2017	<b>Dean's Certificate for excellent results</b>	University of Strathclyde	Glasgow
2014	<b>Winner of the Bloomberg challenge</b>	StrathHack	Glasgow

## Skills

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<b>Programming</b>	Agda, Coq, Haskell, Scala, Python, JS, Java, Rust, C, LaTeX
<b>Sysadmin</b>	NixOS & GNU/Linux administration, Bourne shells, Git
<b>Web</b>	Django, HTML5

## Language Skills

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<b>Basque</b>	native language
<b>Spanish</b>	native language
<b>English</b>	fluent
<b>Dutch</b>	intermediate