

Uma Zalakain

COMPUTER SCIENTIST · SOFTWARE DEVELOPER

Glasgow

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Research Interests

- Programming language theory, type theory, process calculi, abstract algebra.
- Formalisation of theories, construction of machine verified problem solvers

Academic Qualifications

University of Glasgow

PHD COMPUTING SCIENCE

Thesis title: Machine verification of typed process calculi.
Supervisor: Ornela Dardha.

Glasgow

2019 - present

University of Glasgow

MSC COMPUTING SCIENCE · **WITH DISTINCTION**

Thesis title: Type-checking session-typed π -calculus with Coq.
Supervisor: Ornela Dardha.

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).
Thesis title: Evidence providing problem solvers in Agda.
Supervisor: Conor McBride.

Glasgow

2014 - 2018

Unpublished work

π with leftovers: a mechanisation in Agda

MECHANISING A π -CALCULUS WITH LINEAR, SHARED, AND GRADED TYPES USING LEFTOVER TYPING.

paper

code

Professional Experience

University of Glasgow

LAB DEMONSTRATOR

- Demonstrated Theory of Computation

Glasgow

2018 - present

University of Strathclyde

LAB DEMONSTRATOR

- Demonstrated User and Data Modelling
- Demonstrated Programming Foundations
- Received enthusiastic **positive feedback** from students

Glasgow

2017 - 2018

TextLab

WEB DEVELOPER & TEXT ANALYST

Joint research project between the English and Computer Science departments at Strathclyde.

- Developed a small Haskell library that parses and analyses the TEI-encoded texts provided by the Folger Shakespeare Library
- Developed an evolving static website that publishes the analyses carried out together with English students (see **losp.us**)
- Collaborated in meetings with the staff from the Folger Shakespeare Library in Washington, D.C.

Glasgow

2016 - 2018

A2H Software Factory

SOFTWARE DEVELOPER

- Developed small web applications for internal company usage
- Developed a content publishing system focused on third-party integration
- Developed a data extraction and visualization library

Donostia

2014 - 2016

GISA Elkarteia

DEVELOPER & ASSOCIATE

Non-profit organization for the promotion of libre software.

- Developed multiple libre web applications for a local radio station
- Translated multiple libre Android applications to Basque

Errenteria

2010 - present

Skills

Programming Agda, Coq, Haskell, Python, JS, Java, Rust, C, SQL, LaTeX
Sysadmin NixOS & GNU/Linux administration, Bourne shells, Git
Web Django, AngularJS, HTML5, LESS, SASS

Language Skills

Basque native language
Spanish native language
English fluent (speaking, reading, writing)
Dutch intermediate (speaking, reading);
basic (writing)
Italian basic (speaking)
French basic (speaking)

Software Tools

Presburger solver verified solver for Presburger arithmetic in Agda
NetSim simulator for synchronized periodic exchanges of distance vectors across a network
ADTrees modelling and evaluation of attack-defense trees
Juktz a statically typed imperative language and its interpreter
Lightweight-motion RPi-ready motion detection for USB and HTTP(S) cameras

Talks and Presentations

2020	π with leftovers: a mechanisation in Agda	Programming Languages at the University of Glasgow	Online
2020	π with leftovers: a mechanisation in Agda	Verification of Session Types	Online
2020	π with leftovers: a mechanisation in Agda	Agda Implementors' Meeting XXXII	Online
2020	Machine Verification with Agda	seminar series at the UoG	Online
2019	Session-typed π-calculus, Coq, and linearity as a predicate	SPLV – student talks	Glasgow
2019	Type-checking session-typed π-calculus with Coq	BehAPI – student talks	Leicester
2018	Intro to functional programming in Haskell	HackMeeting	Malaga
2016	GPG: Una introducción	Jornadas de Conocimiento Libre	Madrid

Participation

2020	LICS - FSCD - IJCAR	Online	2019-	PLUG series	Glasgow
2020	DisCoTec	Online	2019	SPLV	Glasgow
2020	PLDI	Online	2019	BehAPI	Leicester
2020	Verification of Session Types	Online	2019	MirageOS retreat	Marrakech
2020	AIM XXXII	Online	2018	Hackmeeting	Malaga
2020	Chalmers FP series	Online	2018	ICFP	St Louis
2020	Coq Andes Summer School	Santiago	2016	EuroPython	Bilbao
2019-	MSP101 series	Glasgow			

Honors & Awards

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