Uma **Zalakain**

COMPUTER SCIENTIST · SOFTWARE DEVELOPER

Glasgow

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Research Interests

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

Academic Qualifications

University of Glasgow
Glasgow

PHD COMPUTING SCIENCE
2019 - present

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

University of Glasgow
Glasgow

MSC COMPUTING SCIENCE · WITH DISTINCTION
2018 - 2019

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

University of Strathclyde
Glasgow

BSC HONS COMPUTER SCIENCE · FIRST CLASS HONOURS
2014 - 2018

Awarded Andrew McGettrick prize for **outstanding performance** throughout the degree (2 recipients).
Thesis title: Evidence providing problem solvers in Agda.
Supervisor: Conor McBride.

Professional Experience

University of Glasgow
Glasgow

LAB DEMONSTRATOR
2018 - present

- Demonstrated Theory of Computation

University of Strathclyde
Glasgow

LAB DEMONSTRATOR
2017 - 2018

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

TextLab
Glasgow

WEB DEVELOPER & TEXT ANALYST
2016 - 2018

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.

A2H Software Factory
Donostia

SOFTWARE DEVELOPER
2014 - 2016

- 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

GISA Elkartea

Errenteria

Developer & associate

2010 - present

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

Honors & Awards

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

Skills

Programming	Haskell, Agda, Coq, 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)
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
Nixpkgs	contributed with several packages
Django	contributed with several pull requests

Participation

2019	**Scottish Programming Languages and Verification Summer School**, attendee	*Glasgow*
2019	**Behavioural Approaches for API-Economy with Applications**, attendee	*Leicester*
2019	**MirageOS retreat**, participant	*Marrakech*
2018	**Hackmeeting**, attendee and speaker	*Malaga*
2018	**ICFP**, Programming Languages Mentoring Workshop attendee	*St Louis*
2016	**EuroPython**, attendee	*Bilbao*
2016	**Jornadas de Conocimiento Libre**, attendee and speaker	*Madrid*
2012	**Ud4kamp**, attendee and speaker	*Gernika*
2011	**Arrosa Sareko topaketak**, attendee and speaker	*Bergara*
2009-2013	**Hackmeeting**, attendee and speaker	*Spain*
2010-2013	**Lakaxita Hacklab**, participant, speaker, and organiser	*Irun*

Talks and Presentations

2019   **Session-typed π-calculus, Coq, and linearity as a predicate**, session types, machine verification   *Glasgow*

2019   **Type-checking session-typed π-calculus with Coq**, session types, machine verification   *Leicester*

2018   **Intro to functional programming in Haskell**, inductive reasoning, functional composition   *Malaga*

2016   **GPG: Una introducción**, public key encryption, management of keys, web of trust, and keysigning   *Madrid*

2012   **El lado oscuro de Google**, raises awareness of the power handed over to organizations like Google   *Gernika*

2011   **Segurtasunera sarrera**, security tips for libre radios and grassroot movements   *Bergara*

2011   **Brief intro to Python**, for beginners   *Irun*

2011   **Django workshop**, for beginners   *Irun*