

Uma Zalakain

COMPUTER SCIENTIST · SOFTWARE DEVELOPER

Glasgow

✉ ping@umazalakain.info | 🏠 umazalakain.info | 📧 umazalakain | 🐦 @typer_uma

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

PHD COMPUTING SCIENCE

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

Glasgow

2019 - present

University of Glasgow

MSC COMPUTING SCIENCE · **FIRST CLASS WITH DISTINCTION HONOURS**

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

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 Elkartea

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

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>

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

Talks and Presentations

2019	Session-typed π-calculus, Coq, and linearity as a predicate , session types, machine verification	<i>Glasgow</i>
2019	Type-checking session-typed π-calculus with Coq , session types, machine verification	<i>Leicester</i>
2018	Intro to functional programming in Haskell , inductive reasoning, functional composition	<i>Malaga</i>
2016	GPG: Una introducción , public key encryption, management of keys, web of trust, and keysigning	<i>Madrid</i>
2012	El lado oscuro de Google , raises awareness of the power handed over to organizations like Google	<i>Gernika</i>
2011	Segurtasunera sarrera , security tips for libre radios and grassroot movements	<i>Bergara</i>
2011	Brief intro to Python , for beginners	<i>Irun</i>
2011	Django workshop , for beginners	<i>Irun</i>