31ˢᵗ International Conference on Types for Proofs and Programs
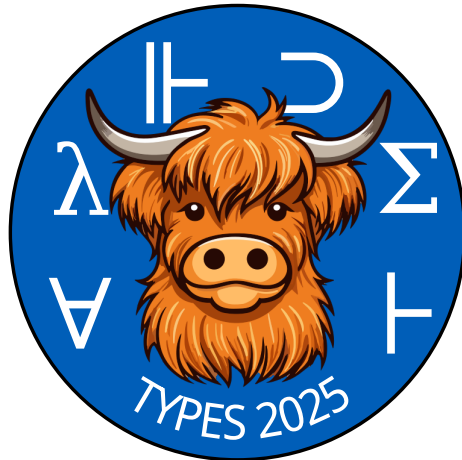
TYPES 2025

University of Strathclyde, Glasgow, Scotland, 9–13 June 2025

Jane Street   Well-Typed The Haskell Consultants   Formal VINDICATIONS Where formal specifications meet technical specifications   INPUT|OUTPUT   University of Strathclyde Glasgow
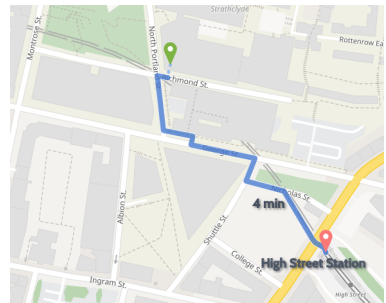
Social events

Monday 9 June: Welcome reception Livingstone Tower

The welcome reception will take place on level 11 of Livingstone Tower with views over Glasgow. Livingstone Tower is located next to the conference venue.
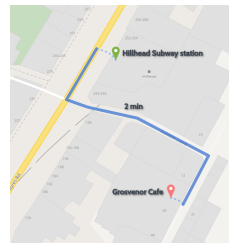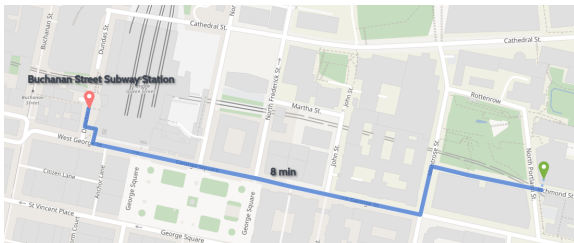
Wednesday 11 June: Excursion to Loch Lomond

Wednesday afternoon we will go on a boat trip on Loch Lomond. To get there, we will take trains from the nearby *High Street* station to the village of Balloch. We will go in two groups: one leaving at 14:39, and one leaving at 15:09. Check the back of your name badge to see which group you have been assigned.

Thursday 12 June: Conference dinner Grosvenor Cafe

The conference dinner will take place in the Grosvenor Cafe (pronounciation: grow-when-er, /ˈɡɹəʊ.və.nə(ɹ)/) in Ashton Lane in the West End of Glasgow. A convenient way to get there is to take the subway from *Buchanan Street* to *Hillhead* — either the inner or outer circle works (but inner will be quicker). The dinner will start at 19:30.

MSP's Guide to Glasgow

Sights, Museums and Parks

In particular we recommend a walk through the Necropolis followed by a visit to the Cathedral.

- The Necropolis. *Glasgow's City of the Dead is close to the conference venue, and offers nice views of the city.*
- Glasgow Cathedral. *Medieval; the oldest building in Glasgow.*
- St Mungo Museum of Religious Life and Art. *Close to the Cathedral and Necropolis.*
- Glasgow Green. *Large green space by the river Clyde.*
- Kelvingrove Art Museum (Kelvingrove Park). *Art/natural history/natural/history museum, well worth a visit. Has a Dalí painting, and is located in a nice park.*
- University of Glasgow and the Hunterian Gallery. *The other university in Glasgow has a nice campus, and the oldest museum in Scotland.*
- Glasgow Botanic Gardens.
- The Burrell Collection (Pollok Park). *A varied collection of art and history. Is located in a nice park, including highland cattle.*
- Queen's Park. *Nice view of Glasgow from the flagpole.*
- Gallery of Modern Art.
- The Riverside Museum. *Award-winning transport and technology museum.*
- Glasgow Science Centre.
- The Clydeside Distillery. *The closest whisky distillery.*
- The Tenement House. *Discover what life was like in Glasgow 100 years ago.*
- Sharmanka Kinetic Theatre. *A unique experience.*
- Glasgow mural trail. *Nice walk in the city centre.*

Conference Schedule

Time (BST)	Monday 9th June	Tuesday 10th June	Wednesday 11th June	Thursday 12th June	Friday 13th June
8:30–9:00	Registration and Coffee	Coffee	Coffee	Coffee	Coffee
9:00–10:00	Towards topological type theory for decrypting transfinite methods in classical mathematics	Algebraic Universes and Variances For All	Intuitionistic modalities through proof theory	Compositional memory management in the λ-calculus	A Guided Tour of Polarity and Focusing
10:00–11:00	Accessible Sets in Martin-Löf Type Theory with Function Extensionality / Constraints	Intensional Parametricity via Lifting Universals / The Case for Impredicative Universe Polymorphism	Higher-Order Focusing on Linearity and Effects	Choice principles and a coinproductibility in the λ-calculus	A Fully Dependent Assembly Language
	Coffee break				
11:00–12:00	Examples and counter-example of injective types in univalent mathematics / In Cantor Space, No One Can Hear You Stream	From parametricity to η-identify types	Monadic Equational Reasoning for while-loop in HoTT / Consuming Work-Even and Quantities in Step-Indexed Logics	Code Generation via Meta-programming in Dependently Typed Proof Assistants	A Fully Dependent Assembly Language / BBGen: Program Extraction in Elementary Number Theory using the Proof Assistant Minlog
12:00–13:00	A Coq Formalisation of Logical Connections for ... / Coq proof of the fifth Busy Beaver value	About the construction of simplicial and cubical sets in indexed form / Predicative State, Duality in Untaxed Foundation	Weak Equality Reflection in HoTT with Proposi... / Towards Quotient Inductive Types in Observational Type Theory / Matching (CO)pattern with Cyclic Proofs	Towards Being Positivity Negative about Depend... / Implementing a Typechecker for an Esoteric Language: Equivalence, Challenges, and Lessons	Towards Modular Composition of Inductive Types / Nbl for LNL via Algebraic Meta-metatables
13:00–14:00	Lunch	Lunch	Lunch	Lunch	Lunch
14:00–15:00	Geometric Reasoning in Lean: from Algebraic Structures to Predicates / Löb's Theorem and Possibility Predicates in ... / Risk Compilation for (Elementary) Topoi	Coinductness in simplified homotopy type theory / Yet another homology group, yet another Brouwer number	How (not) to prove typed type conversion transit... / Arrow algebras	A Third Predicate Temporal Logic Sequent Calculus / Verifying 2D RTP Proofs with the Interactive Theorem Provers Coq/Rocq and Agda	A Generalised Foundation for the Calculus of Constructions / A Quantitative Dependent Type Theory with Re...
15:00–16:00	Coffee break	Coffee break	Coffee break	Coffee break	Coffee break
	Predicates on Purpose / Mechanising logical relations / Thinning Thinnings: Safe and Efficient Braiders / Categorical Normalisation by Evaluation: A Novel Universal Property for System ... / Expansions in a Calculus with Explicit Substitution	Reasoning with strict symmetric monoidal categories in Agda / Constructive algebraic completeness of first-order intuitionistic logic	Towards a computational quantum logic / Internal Proofs of Strong Normalisation	A Generalised Logical Framework / Remaining Monitors for Distributed Deadlock Detection / Fair Termination for Resource-Aware Active Objects	Stellar – A Library for API Programming / An Inductive Universe for Setoids / Weltevosh Problems as Containers / Containers: Compositionality for Tensors / Unbound Dependent Types
		WIPPN Opening and Welcome			
16:00–17:00	Break	Ecumenical Logic / Horrorism	Mechanised safety of relevant consensus in Agda	A Curry-Howard correspondence for intuitionistic linear temporal logic	Solving Guarded Domain Equations in Predicates Over Chiehala and Mechanising It / Large Elimination and Indexed Types in Reflective Type Theory
	A Type Theory for Comprehension Categories without Chain Memory / Directed equality with dualisability	Type Theory of Acyclic and Cyclic Algorithms		An axiomatic in the theory of arithmetic in all fi... / Representing type theories in two-level type the...	
17:00–18:00	Coffee break	Discussion on gender balance issues	Business Meeting	Coffee break	BiTTT.rano: Formalising the Meta-Theory of BiTT in Lean / Towards Formalising the Guard Checker of Rocq
	Synthetic-Inductive Category Theory / An algebraic internal groupoid model of Martin-Löf type theory				Representing type theories in two-level type the...
18:00–19:00	Break / Irregular models of type theory			Conference Dinner	Break
	Radicality: Trippen from Sheaves / AdjGT: A Type Theory with Functorial Types				Colombiagol in Synthetic Stone Duality / Extensional concepts in intensional type theory, syntactically / Lightweight Agda formalisation of Denotational Semantics
19:00–20:00	Welcome reception				

MSP's Guide to Glasgow, continued

Food

Some of our favourites.

City Centre

- Paesano Pizza, £
- Sugo Pasta, £
- Merchant Chippy, £
- Shawarma King, £
- Eda, ££
- Bread Meats Bread, ££
- Damasqino, ££
- The Dhabba, ££
- Cafe Gandolfi, ££
- Mosob, ££
- Yiamas Greek, ££
- Dim Sum, ££
- Swadish, ££
- Sarti's, ££

West End

- Ottoman Coffee House, £
- The Finnieston, £££
- Mother India, ££
- Ox and Finch, ££
- The Dockyard Social, £
- Roastit Bubbly Jocks, ££
- Time Out Cafe, £
- Zique's, ££
- Ubiquitous Chip, £££
- Ashoka, ££
- Bothy, ££

- Hanoi Bike Shop, ££
- Ka Pao, ££
- Stravaigin, ££

East End

- Celentanos, ££
- Sword Sushi, £
- Tibo Bistro, ££
- Dennistoun Bar-B-Que, ££
- WEST Brewery, ££
- The Drygate, ££

South Side

- Bar Vini, ££
- The Big Counter, ££
- Ranjit's Kitchen, £
- Kebabish, ££
- Little Hoi An, ££
- Lobo, ££
- The Glad Cafe, ££
- The Rum Shack, ££

Vegan Specialists

- Mono, ££
- Stereo, ££
- Tapa, £
- Non Viet Vegan, ££
- Suissi Vegan Kitchen, ££
- The Hug and Pint, ££

Pubs and bars

A curated list of MSP favourites, many alternatives are available.

City Centre

- The Pot Still, ££ — *Best pub in Glasgow for Whiskey.*
- Babbity Bowster, ££ — *Live traditional music by regulars on Wednesdays.*
- The Press Bar, £
- The Scotia Bar, £ — *Allegedly the oldest pub in Glasgow.*
- The Clutha, £
- The Howlin' Wolf, ££
- The Old Hairdresser's, £
- The Griffin, £

West End

- Bon Accord, £
- Chinaskis, ££
- Lebowskis, £
- The Sparkle Horse, ££
- Curlers Rest, £
- Inn Deep, ££
- The Belle, £

East End

- Redmond's, ££
- The Palais, ££
- The Gate, ££
- WEST, ££

Southside

- The Rose Reilly, £
- The Bell Jar, ££
- The Allison Arms, £
- Church on the Hill, ££

Live Music

- Nice N Sleazy
- The Hug and Pint
- Mono
- Stereo
- King Tut's Wah Wah Hut
- Ivory Blacks
- St Luke's and the Winged Ox