



RADU POPESCU

CODE MESH TRIP REPORT

CODE MESH LONDON - NOVEMBER 8-9 2017



The underlying theme is “the right tool for the job”.

CODE MESH LONDON - NOVEMBER 8-9 2017

- ▶ <http://www.codemesh.io>
- ▶ 5th edition
- ▶ Industry + academia
- ▶ Organised by Erlang Solutions
- ▶ All talks will be on YouTube: https://www.youtube.com/playlist?list=PLWbHc_FXPo2goQkXS82Yn99HIpQ4G56oF

CODE MESH LONDON - NOVEMBER 8-9 2017

- ▶ Promoting useful non-mainstream technologies to the software industry
- ▶ The underlying theme is "the right tool for the job", as opposed to automatically choosing the tool at hand
- ▶ Brings together users and inventors of different languages and technologies (new and old), speakers will get the opportunity to inspire, to share experience, and to increase insight.

FOUR KEYNOTES

- ▶ Margot Seltzer (Harvard University, Berkley DB) - Automatic Scalability Through Learning, Prediction and Speculation
- ▶ David Turner (Univ. of Kent) - Some History of Functional Programming Languages
- ▶ Guy L. Steele (Oracle) - A Cobbler's Child
- ▶ Matt Might (Hugh Kaul Personalized Medicine Institute) - Winning the War on Error: Solving the Halting Problem and Curing Cancer

SOME PARTICIPATING INSTITUTIONS

U of Cambridge, Oracle, U of Kent, Hugh Kaul Institute of Precision Medicine, British National Museum of Computing, Imperial College, Cognitect, NRK, Starbucks, Migros, ThoughtWorks, Docker, Facebook, VMWare, CERN

PEER STRITZINGER - GRISP

- ▶ Using the Erlang VM (BEAM) on a bare-metal on embedded hardware
- ▶ GRIPS boards can be purchased
- ▶ IoT!

PETER VAN ROY – CATHOLIC UNIV. OF LEUVEN

- ▶ “Building Robust Systems with Weakly Interacting Feedback Structures”
- ▶ Interesting design approach for large scale systems with fault-tolerance
- ▶ Examples: congestion control in TCP, supervision trees in Open Telecom Platform (OTP)

SOPHIA DROSSOPOLOU - IMPERIAL COLLEGE

- ▶ "Pony for Safe, Fast, Concurrent Programs"
- ▶ <https://www.ponylang.org/>
- ▶ "Pony is an open-source, object-oriented, actor-model, capabilities-secure, high-performance programming language."

CHRIS FORD - THOUGHWORKS

- ▶ "Type Systems and Microservices"
- ▶ Using dependent types for implementing session types
 - ▶ Dependent types:
 - ▶ ~ `std::array<int, 4>`
 - ▶ A pair of numbers, the second larger than the first
 - ▶ "A function which takes as an argument a number N and returns a container of size N"
 - ▶ Session types: the encoding of an entire communication protocol in the type systems

ANDREW FORD - VMWARE

- ▶ “Building Actor Systems in Rust: Techniques and Tradeoffs”
- ▶ Case study for using Rust in production (part of an infrastructure orchestration system at VMWare)
 - ▶ The advantages of the type system
 - ▶ Support for concurrency
 - ▶ Extending the actor system to cover multiple nodes

SIMON MARLOW – FACEBOOK

- ▶ “Haxl: A Big Hammer for Concurrency”
- ▶ Simon Marlow wrote “Parallel and Concurrent Programming in Haskell” (O’Reilly)
- ▶ Haxl is a component of Sigma, the platform for fighting spam, malware and abuse at Facebook.
- ▶ Encapsulate the parallelism and concurrency behind an API
- ▶ Similar to TDataFrame?

JUSTIN CORMACK - DOCKER

- ▶ “Immutability and state: making a functional OS”
- ▶ Developer of LinuxKit, a toolkit for building custom, minimal, immutable Linux distributions
 - ▶ At Docker, it's also used to produce the Linux VM that powers Docker for Mac
- ▶ Trying to solve a similar problem as CernVM
- ▶ Will be giving a talk at the CernVM Workshop in Jan 2018

BENJAMIN SAMUEL KOREN

- ▶ “Developing the Sound Diffusive Acoustic Panels of the Elbphilharmonie Concert Hall Hamburg”
- ▶ Actual architect
- ▶ Developing software components to aid in designing these physical components
- ▶ Also covers the production and installation of the panels

MY TALK

- ▶ A presentation of CernVM File System, our use of Erlang in the backend, impressions from the development phase
- ▶ Gave the talk at CodeMesh and at the London Erlang User Group
- ▶ A lot of interest in CernVM FS, and the Docker plugin!