

PIP 2014: Principles in Practice

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Principles in Practice

Recently: research applying rigorous semantics to industrially significant real-world languages and systems.

PiP: discussion of issues in:

- engaging with the industrial communities
- developing and using semantics at scale
- handling pre-existing systems complexity
- the wide range of testing, analysis, and proof-based techniques

Schedule

- 8.30 - 9.00. Andrew Kennedy, Formalizing .EXEs, .DLLs, and all that
- 9.00 - 9.30. Gang Tan, Reusable tools for formal modeling of machine code
- 9.30 - 10.00. Michael Norrish, Ad hoc C: reflections on pragmatic semantics
- 10.00 - 10.30. Break
- 10.30 - 11.00. Daniel Kroening, Automated test-suite generation for automotive applications
- 11.00 - 11.30. Konrad Slind (Rockwell Collins), Industrial verification considered as a helix of semi-precious stones
- 11.30 - 12.00. Xavier Leroy, How much is a mechanized proof worth, certification-wise?
- 12.00 - 2.00. Lunch
- 2.00 - 2.30. Sergio Maffeis, Formal, executable semantics of web languages: JavaScript and PHP
- 2.30 - 3.00. Shriram Krishnamurthi, Programming Language Semantics as Natural Science: The Peculiar, Evolving, and Barely Consummated Relationship Between Semantics and Scripting Languages
- 3.00 - 3.30. Break
- 3.30 - 4.00. Benjamin Pierce, Verification and random testing of the SAFE architecture
- 4.00 - 4.30. Zhong Shao, Advanced Development of Certified OS Kernels

REMS Project

'Rigorous Engineering of Mainstream Systems'

6-year UK-funded project, Cambridge/Imperial/Edinburgh
(+ INRIA, UPenn, Purdue, UTexas, IBM, ARM, MSR, FreeBSD)

Systems+Semantics people

- Scale out from real-world concurrency semantics to reusable general-purpose semantic models of multiprocessors and systems languages
- Tools for building them (Lem \mapsto Coq/HOL/Isabelle/OCaml)
- Verification above them

Will have postdoc positions available