

Monday

9:00 - 10:00

Welcome and introductions

- welcome and logistics
 - abstract and appoint a collector (young researcher)
 - expectation: talks are for ideas not details, feel free to skip details
 - program
 - outcome of the seminar?
- self-introduction of all participants

10:00 - 10:30 coffee break

10:30 - 12:15 (5 x 20min talks + 5min discussion)

Floating-point optimization

- Cindy Rubio-Gonzalez: Dynamic Analysis for Floating-Point Precision Tuning.
- Hui Guo: On Floating-Point Precision Tuning.
- Jeff Hollingsworth: Auto-tuning Floating-Point Precision
- Piotr Luszczek: Autotuning for Portable Performance for Specialized Computational Kernels.
- Nasrine Damouche: Salsa: An Automatic Tool to Improve the Numerical Accuracy of Programs
- discussion (5min)

12:15 - 14:00 lunch

14:00 - 15:40 (4 x 20min talks + 20min discussion)

(Non-)determinism I

- Miriam Leeser: Floating Point Computations in the Multicore and Manycore Era
- Thomas Wahl: Stabilizing Numeric Programs against Platform Uncertainties
- Michela Taufer: Impacts of non-determinist on numerical reproducibility and debugging at the exascale
- Ganesh Gopalakrishnan: Floating-point result-variability: sources and handling
- discussion (20min)

15:40 - 16:00 coffee break

16:00 - 17:00 (3 x 20min talks)

(Non-)determinism II

- Alastair Donaldson: Testing Compilers for a Language With Vague Floating-Point Semantics
- Jim Demmel: Algorithms for Efficient Reproducible Floating Point Summation and BLAS

- Anthony Di Franco: A Comprehensive Study of Real-World Numerical Bug Characteristics

17:00 - 18:00

Breakout session

Tuesday

9:00 - 10:00

Joint session on benchmarks

- Zachary Tatlock: FPBench: Toward Standard Floating Point Benchmarks
- discussion

10:00 - 10:30 coffee break

10:30 - 12:15 (4 x 20min talks + 25min discussion)

Verification I

- Laura Titolo: Title: An Abstract Interpretation Framework for the Round-Off Error Analysis of Floating-Point
- Santosh Nagarakatte: Alive-FP: Automated Verification of Floating Point Optimizations in LLVM
- Victor Magron: Title: Interval Enclosures of Upper Bounds of Roundoff Errors using Semidefinite Programming
- David Monniaux: Verification for floating-point, floating-point for verification
- discussion

12:15 - 14:00 lunch

14:00 - 15:40 (4 x 20min talks + 20min discussion)

Verification II

- Dan Liew: Title: JFS: Solving floating point constraints with coverage guided fuzzing
- Pavel Panchekha: Herbie and Herbrind: find and fixing floating-point errors
- Nathalie Revol: Condition Number and Interval Computations
- Zvonimir Rakamaric: FPTaylor and FPTuner: Analyzing and Tuning Floating-point Routines
- discussion

15:40 - 16:00 coffee break

16:00 - 18:00 (2 x 20min talks + 20min discussion)

Misc talks

- Theo Drane: Floating-Point Cadence
- George Constantinides: Algorithm / Architecture Codesign for Numerical Algorithms

- discussion

17:00 - 18:00

Breakout session or hike

Wednesday

9:00 - 10:00

Discussion and final thoughts

10:00 - 10:30 coffee break

10:30 - 12:15

Discussion or breakout session or hike

12:15 - 14:00 lunch