

GEORGE STELLE

✉ stelleg@lanl.gov • ☎ +1 (505) 750 8506

EMPLOYMENT

- 2016-Present Research Scientist
LOS ALAMOS NATIONAL LABORATORY
Research and develop compilers and programming languages for high performance computing
- 2013-2016 Graduate Student Researcher
SANDIA NATIONAL LABORATORIES
Research and develop lightweight threading libraries for high performance computing on NUMA architectures
- 2009-2013 Graduate Research Assistant
UNIVERSITY OF NEW MEXICO
Research and develop call-by-need compilers, network models, control flow analysis, and type theory

EDUCATION

- 2019 PhD : Computer Science
UNIVERSITY OF NEW MEXICO • Department of Computer Science
THESIS: Shared-Environment Call-by-Need • ADVISOR: Darko Stefanovic
- 2013 MS : Computer Science
UNIVERSITY OF NEW MEXICO • Department of Computer Science
ADVISOR: Stephanie Forrest
- 2008 BS : Computational Intelligence and Design
UNIVERSITY OF BRITISH COLUMBIA • Department of Cognitive Systems

PUBLICATIONS

- 2018 George Stelle and Darko Stefanovic. Verifiably lazy: Verified compilation of call-by-need. In *Proceedings of the 30th Symposium on Implementation and Application of Functional Languages*, IFL 2018, page 49–58, New York, NY, USA, 2018. Association for Computing Machinery
- W. Lee, G. Stelle, P. McCormick, and A. Aiken. Correctness of dynamic dependence analysis for implicitly parallel tasking systems. In *2018 IEEE/ACM 2nd International Workshop on Software Correctness for HPC Applications (Correctness)*, pages 17–24, Nov 2018
- 2017 George Stelle, William S. Moses, Stephen L. Olivier, and Patrick McCormick. OpenMPIR: implementing openmp tasks with tapir. In *Proceedings of the Fourth Workshop on the LLVM Compiler Infrastructure in HPC*, LLVM-HPC’17, pages 3:1–3:12, New York, NY, USA, 2017. ACM
- Noah Evans, Stephen L. Olivier, Richard Barrett, and George Stelle. Scheduling chapel tasks with qthreads on manycore: A tale of two schedulers. In *Proceedings of the 7th International Workshop on Runtime and Operating Systems for Supercomputers ROSS 2017*, ROSS ’17, pages 4:1–4:8, New York, NY, USA, 2017. ACM

- 2016 George Stelle, Darko Stefanovic, Stephen L. Olivier, and Stephanie Forrest. Cactus environment machine. In David Van Horn and John Hughes, editors, *Trends in Functional Programming*, pages 24–43, Cham, 2016. Springer International Publishing
- 2014 G. Stelle, S. L. Olivier, D. Stark, A. F. Rodrigues, and K. S. Hemmert. Using a complementary emulation-simulation co-design approach to assess application readiness for processing-in-memory systems. In *2014 Hardware-Software Co-Design for High Performance Computing*, pages 64–71, Nov 2014
- 2013 Steven Hofmeyr, Tyler Moore, Stephanie Forrest, Benjamin Edwards, and George Stelle. Modeling internet-scale policies for cleaning up malware. In Bruce Schneier, editor, *Economics of Information Security and Privacy III*, pages 149–170, New York, NY, 2013. Springer New York
- 2012 Benjamin Edwards, Tyler Moore, George Stelle, Steven Hofmeyr, and Stephanie Forrest. Beyond the blacklist: Modeling malware spread and the effect of interventions. In *Proceedings of the 2012 New Security Paradigms Workshop*, NSPW ’12, pages 53–66, New York, NY, USA, 2012. ACM

TALKS

- 2019 Concurrency in LLVM
SIAM CSE 2019
- LLVM and LANL ATDM
ECP 2019 ANNUAL MEETING
- 2018 Preventing Data Races with Refinement Types
FHPC 2018
- Verifiably Lazy: Verified Compilation of Call-by-Need
IFL 2018
- 2017 OpenMPIR: Impelementing OpenMP Tasks with Tapir
LLVM-HPC 2017
- Programming Quantum Annealers
OBT 2017
- 2016 Cactus Environment Machine
TFP 2016

SOFTWARE

- 2017-Present Kitsune • *Lead Developer*
CONTRIBUTION: Multiple frontends and backends to Tapir
<https://github.com/lanl/kitsune>
- 2017-Present Tapir • *Contributor*
CONTRIBUTION: Multiple backends, bug fixes
<https://github.com/wsmoses/tapir-llvm>
<https://github.com/wsmoses/tapir-clang>
- 2012-2018 Cactus Environment Machine • *Creator*
CONTRIBUTION: Shared-environment call-by-need implementations, including a native code compiler and a verified compiler
<https://github.com/stelleg/cem> • <https://github.com/stelleg/cem-coq>

- 2018 Equites • *Creator*
 CONTRIBUTION: High level, type-safe interface to legion
<https://github.com/stelleg/equites>
- 2017-2018 Lightweight 3D Printer Interface • *Creator*
 CONTRIBUTION: Low resource G-code communication pipe
<https://github.com/stelleg/l3dp>
- 2017 Coq • *Contributor*
 CONTRIBUTION: Misc. vector functions and lemmas to standard library
<https://github.com/coq/coq>
- 2017 HSAPI • *Creator*
 CONTRIBUTION: Haskell bindings to D-Wave SAPI interface
<https://github.com/lanl/hsapi>
- 2011 Braids in Classical Dynamics • *Creator*
 CONTRIBUTION: Implementation of gradient descent algorithm to find fixed point solutions to 2D n-body problems starting with a drawing
<http://cs.unm.edu/~stelleg/braids>