GEORGE STELLE

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

EMPLOYMENT

2016-Present

Staff 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 the Implementation and Application of Functional Programming Languages*, IFL 2018, page to appear, New York, NY, USA, 2018. ACM

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/wsmosts/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

LANGUAGE SKILLS

Basic	Java · Fortran · Javascript · LATEX· BASH · HTML
Advanced	Coq · Haskell · C · Python · C++ · x86_64