Jeremy L Thompson

Computational Scientist

📞 +1 (719) 502 9895
✉ Thompson.Jeremy.Luke@gmail.com
in JeremyLukeThompson
 jeremylt

Education

2016–2021 **PhD**, *University of Colorado Boulder*.
Applied Mathematics (anticipated)

2012–2010 **MSc**, *University of Washington*.
Applied Mathematics

2005–2009 **BS**, *United States Air Force Academy*.
Mathematics

Experience

2017–current **Graduate Research Assistant**, *University of Colorado Boulder*.
HPC Algorithms and Software Researcher
○ Developing libCEED - C99 minimal dependency library with CPU/GPU performance portability, C/C++, Fortran77, and Python interfaces
○ Researching preconditioners for high order finite elements for exascale hardware
○ Increased code coverage to 96% - https://github.com/CEED/libCEED

2012–2016 **Assistant Professor**, *United States Air Force Academy*.
Math Department Faculty
○ Taught Calc I, Calc II, Calc III, Differential Equations, Engineering Mathematics, Discrete Mathematics
○ Awarded Outstanding Academy Educator, Outstanding Course Director, Outstanding New Instructor

2014–2014 **Visiting Scientist**, *Lawrence Livermore National Laboratory*.
Summer Visiting Faculty
○ Improved wind data projections for optimizing power grid production balancing
○ Implemented smoothing filters, FFT, Gaussian smoothing, and non-local means

2009–2012 **Advanced Weapon Systems Analyst**, *United States Air Force*.
B-52 Testing and Analysis
○ Executed testing and analysis for B-52 nuclear Air Launched Cruise Missile
○ Restored USSTRATCOM confidence in USAF accuracy and reliability forecasts
○ Awarded Air Combat Command Junior Military Scientist of the Year

Technical Skills

C, C++, CUDA, Fortran, Python

Make, Git, Doxygen, Sphinx, Prove, JUnit, Travis CI

Selected Publications

[1] Arash Mehraban, Jed Brown, Valeria Barra, Henry Tufo, Jeremy Thompson, and Richard Regueiro. Efficient residual and matrix-free jacobian evaluation for three-dimensional tri-quadratic hexahedral finite elements with nearly-incompressible neo-hookean hyperelasticity applied to soft materials on unstructured meshes in parallel, with PETSc and libCEED. In *Procedings of the 2020 International Mechanical Engineering Congress and Exposition*, July 2020.

[2] Jeremy L Thompson. An emperical evaluation of denoising techniques for streaming data. Technical Report LLNL-TR-659435, Lawrence Livermore National Laboratory, August 2014.

[3] Jeremy L Thompson, Kurt Herzinger, and Trae Holcomb. The frobenius number of balanced numerical semigroups. *Semigroup Forum*, 94:632–649, 2017.

[4] Valeria Barra, Jed Brown, Jeremy Thompson, and Yohann Dudouit. High-performance operator evaluations with ease of use: libCEED's Python interface. In Meghann Agarwal, Chris Calloway, Dillon Niederhut, and David Shupe, editors, *Proceedings of the 19th Python in Science Conference*, pages 75–80, July 2020.