CURRICULUM VITAE

JEREMY LUKE THOMPSON

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EDUCATION

M.Sc. in Applied Mathematics, December 2011
University of Washington, Seattle, WA, USA

Operations Research Systems Analyst Military Applications Course, May 2010
Army Logistics University, Fort Lee, VA, USA

B.S. in Mathematics with minor in Philosophy, May 2009
United States Air Force Academy, Colorado Springs, CO, USA

AREAS OF INTEREST

- Numerical Analysis, Supercomputing
- Modeling and Computational Mathematics
- Reliability and Accuracy Analysis
- Time Series Analysis, Exponential Smoothing

SKILLS

61A3 Operations Research Analyst, Qualified June 2011
Develops new concepts, methods, and techniques to solve scientific and operational problems. Analyzes theories and research findings to determine applications. Engages in continuous evaluation, development, and modification to improve performance and suitability of products and production processes. Employs mathematical techniques including probability and statistics, simulation, optimization theories, and computer systems to analyze, depict, and display data and analysis results. Develops design studies and monitors contracts.

Programming Languages
C, C++, Fortran, Python, Matlab/Octave, Mathematica/Sage, R

RESEARCH EXPERIENCE

University Of Colorado Boulder Boulder, CO, USA
Graduate Research Assistant Summer 2017 - Current
Development and research on the CEED grant. libCEED is a high-order API library, that provides a common algebraic low-level operator description, allowing a wide variety of applications to take advantage of the efficient operator evaluation algorithms in the different CEED packages (from a single source). Advisor: Assistant Professor Jed Brown

United States Air Force Academy Colorado Springs, CO, USA
Collaborative Research Fall 2012 – Summer 2016
Performing research in Numerical Semigroups as part of faculty research group. Studying the Frobenius Number of Balanced Numerical Semigroups with 4 generators and the Sylvester Coinage game. Collaborators: Professor Kurt D Herzinger, Assistant Professor Ian D Pierce, US Air Force Academy, and Associate Professor Tray D Holcomb, Houston Baptist University

Lawrence Livermore National Laboratory Livermore, CA, USA
Collaborative Research Summer 2014
Research and implementation of local smoothing filters, such as the Box filter, Gaussian smoothing, and the Bilateral filter, frequency coefficient thresholding for Fast Fourier Transformation and Wavelet Transformation, and Non-Local Means, a statistical neighborhood

filter. Research included methodology comparison and optimal parameter stability. Smoothing was implemented in Python. Collaborators: Dr Chandrika Kamath, Dr Ya Ju Fan, Lawrence Livermore National Laboratory.

University of Washington — Seattle, WA, USA
Independent Study — Spring 2011 - Summer 2011
Performed research in Mixed Data Type Exponential Smoothing as an independent study. Creating and studying a model for integrating reliability data from different types of testing into a single exponential smoothing prediction. Advisor: Professor and Chair J Nathan Kutz, University of Washington

United States Air Force Academy — Colorado Springs, CO, USA
Independent Study — Spring 2009 - Spring 2009
Performed research in Numerical Semigroups as an independent study. Studied the effect of intersecting semigroup relative ideals and their duals and proved a series of containment relationships. Advisor: Professor Kurt D Herzinger, US Air Force Academy

PROFESSIONAL EMPLOYMENT

United States Air Force — Barksdale AFB, LA, USA
Advanced Weapon Systems Analyst — Summer 2009 - Summer 2012
Provided analysis in support of B-52 test programs, to include Nuclear Weapon System Evaluation Program. Primary duties included aircraft based nuclear weapon reliability modeling and accuracy analysis for the US Strategic Command nuclear planning factors and analysis and reporting of Air Launched Cruise Missile test data.

United States Air Force — Peterson AFB, CO, USA
Summer Research — Summer 2008
Verified Boeing reliability analysis of Wideband Global SATCOM in support of Operational Test and Evaluation for acceptance of the system. Worked with members of Air Force Operational Test Center, for drafting of test report for delivery to Air Force Space Command and United States Congress.

ACADEMIC EMPLOYMENT

University of Colorado Boulder — Boulder, CO, USA
Graduate Part Time Instructor, Applied Math Dpt — Spring 2017 - Fall 2018
Courses Taught: Calculus I, Calculus III, Differential Equations

University of Colorado Boulder — Boulder, CO, USA
Teaching Assistant, Applied Math Dpt — Fall 2016 - Winter 2016
Courses Taught: Differential Equations

United States Air Force Academy — Colorado Springs, CO, USA
Assistant Professor, Mathematics Dpt — Summer 2014 - Spring 2016
Instructor, Mathematics Dpt — Summer 2012 - Summer 2014
Courses Taught: Calculus I, Calculus II, Calculus III (multivariate and vector calculus), Differential Equations, Engineering Mathematics (systems of ODEs, PDEs, numerical methods, and vector calculus), and Discrete Mathematics

PEER-REVIEWED PUBLICATIONS

Jeremy L. Thompson, Kurt Herzinger, Trae Holcomb *The Frobenius Number of Balanced Numerical Semigroups*,
Semigroup Forum (2017) 94:632-649.

OTHER PUBLICATIONS

Mark Shephard, Valeria Barra, Jed Brown, Jean-Sylvain Camier, Veselin Dobrev, Yohan Dudouit, Paul Fischer, Tzanio Kolev, David Medina, Misun Min, Cameron Smith, Morteza H. Siboni, Jeremy Thompson, Tim Warburton *ECP Milestone Report Improved Support for Parallel Adaptive Simulation in CEED*, WBS 2.2.6.06, Milestone CEED-MS29
Lawrence Livermore National Laboratory, July 2019.

Jed Brown, Ahmad Abdelfattah, Valeria Barra, Veselin Dobrev, Yohann Dudouit, Paul Fischer, Tzanio Kolev, David Medina, Misun Min, Thilina Ratnayaka, Cameron Smith, Jeremy Thompson, Stanimire Tomov, Vladimir Tomov, Tim Warburton *ECP Milestone Report Public Release of CEED 2.0,* WBS 2.2.6.06, Milestone CEED-MS25
Lawrence Livermore National Laboratory, April 2019.

Stanimire Tomoz, Pedro Bello-Maldonado, Jed Brown, Jean-Sylvain Camier, Veselin Dobrev, Jack Dongarra, Paul Fischer, Azzam Haidar, Tzanio Kolev, Elia Merzari, Misun Min, Aleks Obabko, Scott Parker, Thilina Ratnayaka, Jeremy Thompson, Ahmad Abdelfattah, Vladimir Tomov, Tim Warburton *ECP Milestone Report Performance Tuning of CEED Software and First Wave Apps* WBS 2.2.6.06, Milestone CEED-MS20
Lawrence Livermore National Laboratory, September 2018.

Jed Brown, Veselin Dobrew, Som Dutta, Paul Fischer, Kazem Kamran, Tzanio Kolev, David Medina, Misun Min, Thilina Ratnayaka, Mark Shepard, Cameron Smith, Jeremy Thompson *ECP Milestone Report Propose High-order Mesh/Data Format,* WBS 2.2.6.06, Milestone CEED-MS18
Lawrence Livermore National Laboratory, June 2018.

Jed Brown, Jean-Sylvain Camier, Veselin Dobrev, Paul Fischer, Tzanio Kolev, Thilina Ratnayaka, Mark Shepard, Jeremy Thompson, Vladimir Tomov *ECP Milestone Report Initial CEED API*, WBS 2.2.6.06, Milestone CEED-MS10
Lawrence Livermore National Laboratory, December 2017.

Jeremy L. Thompson *An Empirical Evaluation of Denoising Techniques for Streaming Data*, LLNL-TR-659435
Lawrence Livermore National Laboratory, August 2014.

PRESENTATIONS

Jeremy L. Thompson *Matrix Free P-Multigrid with libCEED and PETSc,*
Invited Talk, Argonne National Laboratory.
Argonne National Laboratory, Lemont, Illinois. June 2019.

Jeremy L. Thompson *Optimizing Performance for Portable Generic Finite Element Interfaces,*
SIAM-SCE 2019.
Spokane, Washington. February 2019.

Jeremy L. Thompson *Performance and Portability with the libCEED Finite Element Library*,
UCAR Multicore Workshop 2018.
Boulder, Colorado. September 2018.

Jeremy L. Thompson *Designing Generic Finite Elements Interfaces*,
Mathfest 2018.
Denver, Colorado. August 2018.

Jeremy L. Thompson *Performance and Portability for Generic Finite Elements Interfaces*,
International Conference On Spectral and High Order Methods.
Imperial Collage, London, United Kingdom. July 2018.

Jeremy L. Thompson *Performance and Portability for Generic Finite Elements Interfaces*,
SIAM Front Range Applied Mathematics Student Conference.
University of Colorado Denver, Denver, Colorado. March 2018.

Jeremy L. Thompson *Designing Projects for Engineering Mathematics Students*,
Mathematical Association of America, Rocky Mountain Section Meeting.
Colorado College, Colorado Springs, Colorado. April 2015.

Jeremy L. Thompson *Balanced Numerical Semigroups and Their Frobenius Numbers*,
Mathematical Association of America, Rocky Mountain Section Meeting.
Colorado College, Colorado Springs, Colorado. April 2015.

Jeremy L. Thompson *The Frobenius Number of Balanced Numerical Semigroups*,
Mathfest 2014
Portland, Oregon. August 2014.

Jeremy L. Thompson *The Frobenius Number of Balanced Numerical Semigroups*,
Collaborative Research Presentation for DFMS faculty.
United States Air Force Academy, Colorado. March 2014.

Jeremy L. Thompson *On the Selection of Incremental Denoising Techniques for Streaming Data*,
Technical Presentation for Lawrence Livermore National Laboratory faculty and students.
Lawrence Livermore National Laboratory, California. July 2014.

Jeremy L. Thompson *The Frobenius Number of Balanced Numerical Semigroups*,
Collaborative Research Presentation for DFMS faculty.
United States Air Force Academy, Colorado. March 2014.

Jeremy L. Thompson *Mixed Data Type Exponential Smoothing For Reliability Prediction*,
53rd Wing Operations Analyst Forum.
53rd Wing, Eglin Air Force Base, Florida. January 2011.

Jeremy L. Thompson *Mixed Data Type Exponential Smoothing For Reliability Prediction*,
University of Washington Applied Mathematics Masters Symposium.
University of Washington, Seattle, Washington. December 2011.

Jeremy L. Thompson *Intersecting Relative Ideals and Duals of Numerical Semigroups*.
Service Academy Student Math Conference.
United States Coast Guard Academy, New London, Connecticut. April 2009.

Jeremy L. Thompson *Intersecting Relative Ideals and Duals of Numerical Semigroups*.
Pikes Peak Regional Undergraduate Mathematics Conference.
Colorado Springs, Colorado. February 2009.

Jeremy L. Thompson *Intersecting Relative Ideals and Duals of Numerical Semigroups*.
Independent Study presentation for DFMS faculty.
United States Air Force Academy, Colorado. December 2008.

Jeremy L. Thompson *Numerical Semigroups and Wilf's Conjecture*,
Pi Mu Epsilon National Meeting at MathFest.
Madison, Wisconsin. August 2008.

HONORS AND AWARDS

- Moving to End Sexual Assault Helping Hands Volunteer Award, June 2018
- United States Air Force Academy Department of Mathematical Sciences Brigadier General Daniel W Litwhiler Award for the Outstanding Course Director in Mathematical Sciences, Academic Year 2015-2016
- United States Air Force Academy Department of Mathematical Sciences Outstanding Academy Educator, Academic Year 2013-2014
- United States Air Force Academy Department of Mathematical Sciences Outstanding New Instructor, Spring 2013
- Air Combat Command Scientist of the Year, Junior Military Category, 2011
- Honor Graduate, Operations Research Systems Analysis Military Application Course Phase II, Fort Lee Virginia, May 2010
- Honor Graduate, Operations Research Systems Analysis Military Application Course Phase I, Fort Lee Virginia, February 2010
- American Mathematical Society Award for excellence in student exposition and research, Madison Wisconsin, August 2008

PROFESSIONAL AFFILIATIONS

- Military Operations Research Society
- Pi Mu Epsilon

SERVICE

- MESA Hotline Team Leader (2018)
- MESA Sexual Assault Prevention Educator (2018)
- MESA Sexual Assault Victim Advocate (2018)
- USAFA Sexual Assault Volunteer Victim Advocate and Educator (2014 - 2016)
- Department of Mathematical Sciences Advisor In Charge (2013 - 2016)
- USAFA Cadet Honor Guard Officer in Charge (Faculty Mentor) (2014 - 2016)
- USAFA Freethinkers Club Officer in Charge (Faculty Mentor) (2013 - 2016)

REFERENCES

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