

Jeremy M. Myers *(he/him)*

 *Ph.D. Candidate, College of William & Mary*
 *Graduate Intern, Sandia National Laboratories*

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Education

- Ph.D., Computer Science (Aug. 2023), College of William & Mary, Williamsburg, VA.
 - Dissertation Title: *Low-Rank Matrix and Tensor Models for Data Science Applications in Scientific Computing*
 - Co-advisors: Andreas Stathopoulos and Daniel M. Dunlavy
 - Concentration: Computational Science
- M.S., Mathematical Sciences (Aug. 2017), Virginia Commonwealth University, Richmond, VA.
 - Thesis Title: *Computational Fluid Dynamics in a Terminal Alveolated Bronchiole Duct with Expanding Walls: Proof-of-Concept in OpenFOAM*
 - Advisor: Rebecca Segal
 - Concentration: Applied Mathematics
- B.S., Mathematical Sciences (Dec. 2014), Virginia Commonwealth University, Richmond, VA.
 - Concentration: Applied Mathematics
- B.A., International Affairs (May 2009), James Madison University, Harrisonburg, VA.
 - Concentration: Comparative Politics – Russia
 - Minors: Economics, Russian Studies

Professional Experience

- R&D Graduate Intern (June 2019–Present), Sandia National Laboratories, Livermore, CA.
 - Implemented fine-grained computational and statistical metrics in MATLAB and [SparTen](#) with results that were published in two peer-reviewed conferences (HPEC20, HPEC21) and two Sandia technical reports; implemented parallel algorithms for experimental analysis; extension and simplification of UI; parameter sensitivity analyses.
 - Worked with lead developer of [Genten](#) to implement parallel algorithms and UI extensions for research that was published in a Sandia technical report and presented at the PP22 conference.
 - Engineered data wrangling algorithms in Python to transform raw temporal data into multiway sparse tensor format.
 - Performed exploratory data science analysis with NumPy, Pandas, and JupyterLab.
 - Supervised graduate intern: Andrew Maicke (May–Aug. 2022).
- Graduate Research Assistant (May 2019–Present), Department of Computer Science, College of William & Mary, Williamsburg, VA.
 - Researched and developed matrix sketching and matrix sampling algorithms for streaming data applications (*paper in progress*); researched iterative solvers for eigenvalue and singular value decomposition; implemented algorithms and optimized code for kernel machine learning computations and analysis.
- Graduate Teaching Assistant (Aug. 2017–May 2019), Department of Computer Science, College of William & Mary, Williamsburg, VA.
- Graduate Teaching Assistant (Aug. 2015–May 2017), Department of Mathematics & Applied Mathematics, Virginia Commonwealth University, Richmond, VA.

Software Development

- [SparTen](#): [Canonical Polyadic Alternating Poisson Regression \(CP-APR\) in C++](#) (*Core development team member*)
- [Genten](#): [Software for Generalized Tensor Decompositions in C++](#) (*Fork maintainer*)
- MATLAB experience: implemented algorithms for matrix sketching and sampling; extensive use of toolboxes (e.g. MEX, statistics and machine learning, optimization) and external packages (PRIMME, Tensor Toolbox).
- Parallel computing and other experience: parallel algorithms implementation in Kokkos; extensive cluster computing use (> 1M numerical experiments ran successfully) with schedulers (e.g. SLURM, LSF); familiarity with multiple build systems (e.g. CMake) on heterogeneous backends (Intel CPU, accelerators, ARM); extensive shell scripting (e.g. bash).

Peer-Reviewed Publications

- [P3] Jeremy M. Myers, Daniel M. Dunlavy, [Using Computation Effectively for Scalable Poisson Tensor Factorization: Comparing Methods Beyond Computational Efficiency](#), in *Proceedings of the IEEE High Performance Extreme Computing Conference (HPEC21)*, September 2021.
- [P2] Keita Teranishi, Daniel M. Dunlavy, Jeremy M. Myers, Richard F. Barrett, [SparTen: Leveraging Kokkos for On-node Parallelism in a Second Order Method for Fitting Canonical Polyadic Tensor Models to Poisson Data](#), in *Proceedings of the IEEE High Performance Extreme Computing Conference (HPEC20)*, September 2020.
- [P1] Jeremy M. Myers, Daniel M. Dunlavy, Keita Teranishi, D. S. Hollman, [Parameter Sensitivity Analysis of the SparTen High Performance Sparse Tensor Decomposition Software](#), in *Proceedings of the IEEE High Performance Extreme Computing Conference (HPEC20)*, September 2020.

Conference Presentations

- [C6] Jeremy M. Myers, Daniel M. Dunlavy, [Tensor Decompositions using Stochastic and Deterministic Optimization](#), SIAM Conference on Optimization (OP23), Seattle, WA, May 31–June 3, 2023.
- [C5] Jeremy M. Myers, Daniel M. Dunlavy, [Tensor Decompositions using Stochastic and Deterministic Optimization](#), Conference on Data Analysis (CoDA 2023), Santa Fe, NM, March 7–9, 2023.
- [C4] Jeremy M. Myers, Daniel M. Dunlavy, [Cyclic GCP-CPAPR Hybrid](#), 20th SIAM Conference on Parallel Processing for Scientific Computing 2022 (PP22), February 23–26, 2022.
- [C3] Keita Teranishi, D. S. Hollman, Jeremy M. Myers, Richard F. Barrett, and Daniel M. Dunlavy, [Load balancing strategy of Parallel Performance Portable Sparse CP-APR Decomposition](#), 19th SIAM Conference on Parallel Processing for Scientific Computing (PP20), February 2020.
- [C2] Andreas Stathopoulos, Jeremy M. Myers, Lingfei Wu, Eloy Romero, and Zhenming Liu, [Using the power of iterative methods for the SVD in machine learning](#), Numerical Analysis and Scientific Computation with Applications, 2018.
- [C1] Andreas Stathopoulos, Jeremy M. Myers, Lingfei Wu, Eloy Romero, Fangli Xu, and Zhenming Liu, [Does machine learning need the power of iterative methods for the SVD?](#), 15th Copper Mountain Conference on Iterative methods, 2018.

Technical Reports

- [T3] Jeremy M. Myers and Daniel M. Dunlavy, [A Hybrid Method for Tensor Decompositions that Leverages Stochastic and Deterministic Optimization](#), Technical Report Number SAND2022-5616R, Sandia National Laboratories, Albuquerque, NM and Livermore, CA, July 2022.
- [T2] Jeremy M. Myers, Daniel M. Dunlavy, Keita Teranishi, D. S. Hollman, [Parameter Sensitivity Analysis of the SparTen High Performance Sparse Tensor Decomposition Software: Extended Analysis](#), Technical Report Number SAND2020-11901R, Sandia National Laboratories, Albuquerque, NM and Livermore, CA, October 2020.
- [T1] Jeremy M. Myers, Daniel M. Dunlavy, Keita Teranishi, and D. S. Hollman, [Parameter Sensitivity Analysis of the SparTen High Performance Sparse Tensor Decomposition Software](#), in *Computer Science Research Institute Summer Proceedings 2020*, A.A. Rushdi and M.L. Parks, eds., Technical Report SAND2020-12580R, Sandia National Laboratories, 2020, pp. 99–110.

Other Presentations

- [O2] Jeremy M. Myers, [Tensor methods for data science](#), *Sandia Winter Intern Symposium*, Virtual, Feb. 2022.
- [O1] Jeremy M. Myers, [What the heck is an eigenvalue?](#), *Graduate Student Association Journal Club*, Williamsburg, VA, April 2019.

Professional Service

- *Workshop, Conference, and Minisymposium Organization*
 - Minisymposium Co-organizer, [Parallel Algorithms for Tensor Computations and their Applications](#), SIAM Conference on Parallel Processing for Scientific Computing (PP22), Hybrid Conference, Feb. 23–26, 2022.

- Minisymposium Co-organizer, [Optimizations for Sparse Tensor Factorizations in High Performance Computing](#), SIAM Conference on Applied Linear Algebra (LA21), Virtual Conference, May 17–21, 2021.
- *Conferences and Workshops*
 - Genius Bar, [Tensor Decompositions: A Quick Tour of Illustrative Applications](#), SIAM Conference on Mathematics of Data Science (MDS22), San Diego, CA, September 26–30, 2022.
 - Student Volunteer, The International Conference for High Performance Computing, Networking, Storage, and Analysis (SC21), November 13–19, 2021.
- *Committee Work*
 - Student Representative, Graduate Student Advisory Group, College of William & Mary, 2020–2021.

Honors and Awards

- SIAM Student Travel Award, SIAM Conference on Applied Linear Algebra, 2021.
- Graduate Student Association Conference Award, College of William & Mary, 2021.
- Graduate Student Association Conference Award, College of William & Mary, 2020.
- Math in Moscow Travel Grant, American Mathematical Society, 2014.
- Amalia D. Baylor Russian Language Scholarship, James Madison University, 2007.

Professional Association and Society Memberships

- [Society for Industrial and Applied Mathematics \(SIAM\)](#)
- [Institute of Electrical and Electronics Engineers \(IEEE\)](#)

Certifications

- Adult First Aid/CPR/AED (ID # 00VMSRJ), American Red Cross, Expires: July 2024.