

Byron Tasseff

Scientist, Information Systems and Modeling Group
Los Alamos National Laboratory

P.O. Box 1663, C921
Los Alamos, NM, 87545
☎ (505) 667-6998
✉ btasseff@lanl.gov
<https://byron.tasseff.com>

Education

- Sept 2016 – Present **Ph.D. Candidate, Industrial and Operations Engineering**, *University of Michigan*.
Advised by [Pascal Van Hentenryck](#) and [Russell Bent](#)
- April 2018 **M.S., Industrial and Operations Engineering**, *University of Michigan*, GPA 4.00/4.00.
- May 2012 **B.S., Physics**, *University of Northern Iowa*, *summa cum laude*, GPA 3.97/4.00.
Minor: Mathematics; Honors Thesis: *GPU-accelerated molecular dynamics simulation of rigid water*

Experience

- Sept 2013 – Present **Los Alamos National Laboratory**, *Scientist*, Los Alamos, New Mexico.
Developing optimization methods for the design and control of physical systems.
- Aug 2012 – Sept 2013 **Los Alamos National Laboratory**, *Postbaccalaureate Researcher*, Los Alamos, New Mexico.
Developed a parallel hydrodynamics simulation framework used in national emergency flood response.
- May 2012 – July 2012 **LSU Center for Computation & Technology**, *NSF REU Researcher*, Baton Rouge, Louisiana.
Leveraged graphics processing units to parallelize an existing quantum Monte Carlo code.
- Oct 2010 – May 2012 **University of Northern Iowa**, *Student Researcher*, Cedar Falls, Iowa.
Developed a parallel molecular dynamics simulation of rigid water for graphics processing units.
- May 2011 – Aug 2011 **SRI International**, *NSF REU Researcher*, Menlo Park, California.
Investigated the insertion of peptides into model lipid bilayers using novel microfluidic techniques.
- Nov 2010 – May 2011 **John Deere Product Engineering Center**, *Part-Time Student*, Cedar Falls, Iowa.
Supported the [selective catalytic reduction](#) team; documented test protocol; developed data analysis tools.
- May 2010 – Aug 2010 **University of Northern Iowa**, *Summer Research Fellow*, Cedar Falls, Iowa.
Developed a Monte Carlo simulation model for electron transport at metal-semiconductor interfaces.
- Nov 2009 – May 2010 **University of Northern Iowa**, *Student Researcher*, Cedar Falls, Iowa.
Operated scanning tunneling microscopes; constructed small test chambers; analyzed nanoscale imagery.

Awards & Honors

- 2019 [R&D 100 Award](#) (for Severe Contingency Solver: Electric Power Transmission), R&D Magazine
- 2019 [Distinguished Performance Award](#) (for the Critical Infrastructure Optimization Team), LANL
- 2016 – 2021 [Graduate Research Fellowship](#), NSF
- 2014, 2015 [LAAP Award](#) (for outstanding contributions to the [NISAC](#) project), LANL
- 2014 [LAAP Award](#) (for the development of novel flood simulation and visualization software), LANL
- 2012 [Top Poster in REU Program](#), LSU Summer Undergraduate Research Forum
- 2011 [Barry M. Goldwater Scholarship](#), Honorable Mention
- 2011 [Louis Begeman Memorial Scholarship](#), UNI Department of Physics
- 2010 [Summer Research Fellowship](#), UNI Department of Physics
- 2010 Outstanding Performance in Introductory Physics, UNI Department of Physics
- 2010 [SOAR Undergraduate Research Award](#), UNI College of Natural Sciences
- 2008 – 2012 [Dean's List](#), UNI College of Natural Sciences
- 2008 – 2012 [Provost Scholarship](#), UNI Honors Program
- 2008 – 2010 [Distinguished Scholar Award for Iowans](#), UNI

Skills

General	C, C++, Julia, Python, MATLAB, AMPL, CPLEX, Gurobi, SQL, Bash, CMake, \LaTeX .
Parallel Computing	CUDA, OpenMP, SLURM, various profiling tools. Analysis and tuning of multithreaded applications.
Cloud Computing	AWS (EC2, RDS, SNS, SQS, SWF), automation and scaling of long-running scientific workflows.

Affiliations

2020 – Present	Society for Industrial and Applied Mathematics (SIAM)
2016 – Present	Institute for Operations Research and the Management Sciences (INFORMS)
2012 – Present	Kappa Mu Epsilon (The Mathematics Honor Society)
2011 – Present	Sigma Pi Sigma (The Physics Honor Society)
2011 – Present	Society of Physics Students
2010 – Present	American Physical Society
2009 – 2012	UNI Physics Club (2011 – 2012 Vice President)

Publications

Conference & Journal Papers

- [1] Carleton Coffrin, Russell Bent, **Byron Tasseff**, Kaarthik Sundar, and Scott Backhaus. [Relaxations of AC maximal load delivery for severe contingency analysis](#). *IEEE Transactions on Power Systems*, 34(2):1450–1458, 2019.
- [2] **Byron Tasseff**, Russell Bent, and Pascal Van Hentenryck. [Optimization of structural flood mitigation strategies](#). *Water Resources Research*, 55(2):1490–1509, 2019.
- [3] Geoffrey Fairchild, **Byron Tasseff**, Hari Khalsa, Nicholas Generous, Ashlynn Daughton, Nileena Velappan, Reid Priedhorsky, and Alina Deshpande. [Epidemiological data challenges: planning for a more robust future through data standards](#). *Frontiers in Public Health*, 6:336, 2018.
- [4] **Byron Tasseff**, Russell Bent, and Pascal Van Hentenryck. [Optimal flood mitigation over flood propagation approximations](#). In *Proceedings of the Thirteenth International Conference on Integration of Artificial Intelligence and Operations Research Techniques in Constraint Programming (CPAIOR 2016)*, Banff, Canada, May 29 – June 1, 2016.

Workshop Papers & Technical Reports

- [5] **Byron Tasseff**, Carleton Coffrin, Andreas Wächter, and Carl Laird. [Exploring benefits of linear solver parallelism on modern nonlinear optimization applications](#). *arXiv preprint*, 2019.
- [6] David Judi, **Byron Tasseff**, Russell Bent, and Feng Pan. [Topography-based flood planning and optimization capability development report](#). Technical report, Los Alamos National Laboratory, February 2014. LA-UR-14-21247.
- [7] Russell Bent, Christa Brelsford, **Byron Tasseff**, and Darrin Visarraga. [Hydropolis dam failure: Impact assessments](#). In *12th International Benchmark Workshop on Numerical Analysis of Dams (ICOLD'13)*, Graz, Austria, October 2-4, 2013. LA-UR-13-26664.
- [8] David Judi and **Byron Tasseff**. [Rainfall-driven flooding capability development report](#). Technical report, Los Alamos National Laboratory, June 2013. LA-UR-13-24778.

Posters & Presentations

- [9] Elena Khlebnikova, Mary Ewers, Kaarthik Sundar, Anatoly Zlotnik, **Byron Tasseff**, and Russell Bent. [Optimization of liquid petroleum products pipeline operations](#). In *2019 American Institute of Chemical Engineers (AIChE) Annual Meeting*, Orlando, FL, November 10-15, 2019.
- [10] **Byron Tasseff**, Russell Bent, and Carleton Coffrin. [WATERMODELS.JL: An open-source framework for exploring water network optimization formulations](#). In *2019 Institute for Operations*

Research and the Management Sciences (INFORMS) Annual Meeting, Seattle, WA, October 20-23, 2019.

- [11] **Byron Tasseff**, Russell Bent, and Pascal Van Hentenryck. [Cutting planes for global optimization of water distribution network design](#). In *2019 Institute for Operations Research and the Management Sciences (INFORMS) Annual Meeting*, Seattle, WA, October 20-23, 2019.
- [12] **Byron Tasseff**. [Exploring benefits of linear solver parallelism on modern nonlinear optimization applications](#). In *Center for Nonlinear Studies (CNLS) Smart Grid Seminar*, Los Alamos, NM, August 13, 2019.
- [13] Donatella Pasqualini, Nathan Urban, Joel Rowland, John Moulton, Phillip Wolfram, Chonggang Xu, Russell Bent, Devin Goodsman, Devin Francom, Harsha Nagarajan, **Byron Tasseff**, Bowen Li, and Benjamin Vega-Westhoff. [Preparing our coastlines for climate security threats](#). In *2018 American Geophysical Union (AGU) Fall Meeting*, Washington, D.C., December 10-14, 2018.
- [14] **Byron Tasseff**, Russell Bent, and Pascal Van Hentenryck. Flood mitigation optimization. In *Institute for Operations Research and the Management Sciences (INFORMS) at the University of Michigan: Hurricane Fundraising Seminar*, Ann Arbor, MI, October 20, 2017.
- [15] David Judi and **Byron Tasseff**. [Modeling and simulation of rainfall-runoff flooding using probabilistic precipitation forecasts](#). In *7th International Congress on Environmental Modelling and Software (iEMSs'14)*, San Diego, CA, June 16-19, 2014. LA-UR-14-24438.
- [16] **Byron Tasseff** and David Judi. [Simulating floods in virtual reality](#). In *7th International Congress on Environmental Modelling and Software (iEMSs'14)*, San Diego, CA, June 16-19, 2014. LA-UR-14-24432.
- [17] Niladri Sengupta, Kaushik Ragavan, **Byron Tasseff**, Ka Ming Tam, Juana Moreno, and Mark Jarrell. [GPU acceleration of a variational Monte Carlo method](#). In *GPU Technology Conference (GTC'14)*, San Jose, CA, March 24-27, 2014.
- [18] **Byron Tasseff**, Narendra Setty, Niladri Sengupta, Zhifeng Yun, Sameer Abu Asal, Ye Fang, Sandeep Pathak, Juana Moreno, J. Ramanujam, and Mark Jarrell. [GPU-accelerated variational Monte Carlo](#). In *LSU Summer Undergraduate Research Forum*, Baton Rouge, LA, July 27, 2012.
- [19] **Byron Tasseff**. [GPU-accelerated molecular dynamics simulation of rigid water](#). In *UNI Honors Research Day*, Cedar Falls, IA, April 14, 2012.
- [20] **Byron Tasseff**. Droplet lipid bilayers. In *SRI International Student Seminar*, Menlo Park, CA, August 11, 2011.
- [21] **Byron Tasseff**. Ballistic transport at metal-semiconductor interfaces. In *Argonne Undergraduate Research Symposium*, Lemont, IL, October 15, 2010.