Erin Claire Carson

Curriculum Vitae

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Education

2009–2015 Ph.D. in Computer Science, with a Designated Emphasis in Computational and Data Science and Engineering, University of California Berkeley.

2005–2009 B.S. in Computer Science, with Minors in Applied Mathematics and Materials Science, University of Virginia.

PhD Thesis

Title *Communication-avoiding Krylov Subspace Methods in Theory and Practice*

Supervisors Professor James Demmel & Professor Armando Fox

Description This thesis evaluates tradeoffs between performance and accuracy in communication-avoiding Krylov subspace methods for high-performance scientific codes.

Professional Appointments

2022– Assistant Professor, Department of Numerical Mathematics, Faculty of Mathematics and Physics, Charles University.

2019–2022 PRIMUS Research Fellow, Department of Numerical Mathematics, Faculty of Mathematics and Physics, Charles University.

2018–2019 Postdoctoral Researcher, Department of Numerical Mathematics, Faculty of Mathematics and Physics, Charles University.

2015–2018 Courant Instructor/Assistant Professor, Courant Institute of Mathematical Sciences, New York University.

Grants

2023–2028 Principal Investigator, "Analyzing and Exploiting Inexactness in Exascale Matrix Computations", ERC Starting Grant No. 101075632 *(to begin in 2023)*, European Research Council.

2020–2023 Principal Investigator/Subcontractor, "Mixed Precision Numerical Linear Algebra", Subcontract Awards B639388, B644596 and B650935, U.S. Exascale Computing Project (Primary award 17-SC-20-SC), LLNL - Charles University.

2019–2022 Principal Investigator of the PRIMUS Research Project PRIMUS/19/SCI/11, "Scalable and Accurate Numerical Linear Algebra for Next-Generation Hardware" *(until September 2022)*, Charles University.

Publications

Journal Papers

2023 E. Carson and N. Khan, *Mixed Precision Iterative Refinement with Sparse Approximate Inverse Preconditioning*, SIAM Journal on Scientific Computing (accepted; in press).

2022 E. Oktay and E. Carson, *Multistage Mixed Precision Iterative Refinement*, Numerical Linear Algebra with Applications, 2022, e2434.

2022 E. Carson, K. Lund, M. Rozložník, and S. Thomas, *Block Gram-Schmidt Algorithms and their Stability Properties*, Linear Algebra and its Applications, 638, 2022, pp. 150-195.

2021 E. Carson, T. Gergelits, and I. Yamazaki, *Mixed Precision s-step Lanczos and Conjugate Gradient Algorithms*, Numerical Linear Algebra with Applications, 2021, e2425.

2021 E. Carson, K. Lund, and M. Rozložník, *The Stability of Block Variants of Classical Gram-Schmidt*, SIAM Journal on Matrix Analysis and Applications, 42(3), 2021, pp. 1365-1380.

2021 A. Abdelfattah, H. Anzt, E. G. Boman, E. Carson, et al., *A Survey of Numerical Methods Utilizing Mixed Precision Arithmetic*, International Journal of High Performance Computing Applications, 35(4), 2021, pp. 344-369.

2020 E. Carson, N. J. Higham, and S. Pranesh, *Three-Precision GMRES-Based Iterative Refinement for Least Squares Problems*, SIAM Journal on Scientific Computing, 42(6), 2020, pp. A4063-A4083.

2020 T. Chen and E. Carson, *Predict-and-Recompute Conjugate Gradient Variants*, SIAM Journal on Scientific Computing, 42(5), 2020, pp. A3084-A3108.

2020 E. Carson, *An Adaptive s-step Conjugate Gradient Algorithm with Dynamic Basis Updating*, Applications of Mathematics, 65(2), 2020, pp. 123-151.

2020 E. Carson and Z. Strakoš, *On the Cost of Iterative Computations*, Philosophical Transactions of the Royal Society A, 378(2166), 2020.

2018 E. Carson, M. Rozložník, Z. Strakoš, P. Tichý, and M. Tůma, *The Numerical Stability Analysis of Pipelined Conjugate Gradient Methods: Historical Context and Methodology*, SIAM Journal on Scientific Computing, 40(5), 2018, pp. A3549-3580.

2018 E. Carson, *The Adaptive s-step Conjugate Gradient Method*, SIAM Journal on Matrix Analysis and Applications, 39(3), 2018, pp. 1318-1338.

2018 E. Carson and N. Higham, *Accelerating the Solution of Linear Systems by Iterative Refinement in Three Precisions*, SIAM Journal on Scientific Computing, 40(2), 2018, pp. A817-A847 .

2017 E. Carson and N. Higham, *A New Analysis of Iterative Refinement and its Application to Accurate Solution of Ill-Conditioned Sparse Linear Systems*, SIAM Journal on Scientific Computing, 39(6), 2017, pp. A2834-A2856.

2016 E. Solomonik, E. Carson, N. Knight, and J. Demmel, *Tradeoffs between Synchronization, Communication, and Computation in Parallel Linear Algebra Computations*, ACM Transactions on Parallel Computing, 3(1), 2016, pp. 3:1-3:47.

2015 E. Carson and J. Demmel, *Accuracy of the s-Step Lanczos Method for the Symmetric Eigenproblem in Finite Precision*, SIAM Journal on Matrix Analysis and Applications, 36(2), 2015, pp. 793-819.

2014 E. Carson, N. Knight, and J. Demmel, *An Efficient Deflation Technique for the Communication-Avoiding Conjugate Gradient Method*, Electronic Transactions on Numerical Analysis, 43, 2014, pp. 125-141.

2014 G. Ballard, E. Carson, J. Demmel, M. Hoemmen, N. Knight, and O.Schwartz, *Communication Lower Bounds and Optimal Algorithms for Numerical Linear Algebra*, Acta Numerica, 23, 2014, pp. 1-155.

2014 N. Knight, E. Carson and J. Demmel, *Exploiting Data Sparsity in Parallel Matrix Powers Computations*, in Parallel Processing and Applied Mathematics, R. Wyrzykowski, J. Dongarra, K. Karczewski, and J. Waniewski, eds., Lecture Notes in Computer Science, 8384, Springer Berlin Heidelberg, 2014, pp. 15-25.

2014 E. Carson and J. Demmel, *A Residual Replacement Strategy for Improving the Maximum Attainable Accuracy of s-Step Krylov Subspace Methods*, SIAM Journal on Matrix Analysis and Applications, 35(1), 2014, pp. 22-43.

2013 E. Carson, N. Knight, and J. Demmel, *Avoiding Communication in Nonsymmetric Lanczos-based Krylov Subspace Methods*, SIAM Journal on Scientific Computing, 35(5), 2013, pp. S42-S61.

Conference Proceedings

2022 E. Carson, B. Kelley, and I. Yamazaki, *Mixed Precision s-step Conjugate Gradient with Residual Replacement on GPUs*, in Proceedings of the 36th IEEE International Parallel and Distributed Processing Symposium (IPDPS), 2022, pp. 886-896.

2016 E. Carson, J. Demmel, L. Grigori, N. Knight, P. Koanantakool, O. Schwartz, O. H.V. Simhadri, *Write-Avoiding Algorithms*, in Proceedings of the 30th IEEE International Parallel and Distributed Processing Symposium (IPDPS), 2016, pp. 648-658.

2014 E. Solomonik, E. Carson, N. Knight, and J. Demmel, *Tradeoffs Between Synchronization, Communication, and Work in Parallel Linear Algebra Computations*, in Proceedings of the 26th ACM Symposium on Parallelism in Algorithms and Architectures (SPAA), 2014, pp. 307-318.

2014 S. Williams, E. Carson, M. Lijewski, N. Knight, A. Almgren, B. Van Straalen, and J. Demmel, *s-Step Krylov Subspace Methods as Bottom Solvers for Geometric Multigrid*, in Proceedings of the 28th IEEE International Parallel and Distributed Processing Symposium (IPDPS), 2014, p.. 1149-1158.

2007 J. Carnahan, S. Policastro, E. Carson, P. Reynolds Jr., and R. Kelly, *Using Flexible Points in a Developing Simulation of Selective Dissolution in Alloys*, in Proceedings of the 39th Winter Simulation Conference, IEEE Press, 2007, pp. 891-899.

Presentations

2022 **Invited Seminar Talk:** "Improving the Numerical Behavior of Communication-Avoiding Krylov Subspace Methods", Faculty of Computer Science Seminar, University of Vienna, September 1, 2022..

2022 **Invited Talk:** "Recent Progress in Mixed Precision Numerical Linear Algebra", Advances in Numerical Linear Algebra: Celebrating the 60th Birthday of Nick Higham, Manchester, UK, July 8, 2022..

2022 **Invited Plenary Talk:** "Mixed Precision Iterative Refinement", XXI Householder Symposium on Numerical Linear Algebra, Selva di Fasano, Italy, June 16, 2022.

2022 **Invited Talk:** "Opportunities for Mixed Precision in Preconditioned Iterative Methods", International Conference on Preconditioning Techniques for Scientific and Industrial Applications (Preconditioning 2022), Chemnitz, Germany, June 9, 2022.

2022 **Invited Seminar Talk:** "Challenges and Opportunities in Mixed Precision Numerical Linear Algebra", Innovative Computing Laboratory, University of Tennessee, online, May 13, 2022.

2022 **Invited Talk:** "Exploiting Mixed Precision in Numerical Linear Algebra", 47th Annual University of Arkansas Spring Lecture Series: Numerical Linear Algebra: from Scientific Computing to Data Science Applications, University of Arkansas, May 4, 2022.

2022 "The Hazards and Challenges of Low Precision Computation", SIAM Parallel Processing (PP22), online, February 24, 2022.

2021 **Invited Talk:** "High Performance Mixed Precision Numerical Linear Algebra", Numerical Methods and High Performance Computing for industrial applications (SimRace), IFP Energies Nouvelles, France, December 3, 2021.

2021 **Invited Seminar Talk:** "Exploiting Mixed Precision in Numerical Linear Algebra", MATHICSE Seminar Series, EPFL, Switzerland, November 2, 2021.

2021 **Invited Seminar Talk:** "Exploiting Mixed Precision in Numerical Linear Algebra", Center for Control, Dynamical Systems, and Computation (CCDC) Seminar Series, U.C. Santa Barbara, online, October 29, 2021.

2021 "When Floating-Point Error Matters: the Hazards and Challenges of Low-Precision Computation", SIAM Annual Meeting (AN21), online, July 22, 2021.

2021 "Mixed Precision *s*-step Lanczos and Conjugate Gradient Algorithms", Platform for Advanced Scientific Computing (PASC '21), online, July 7, 2021.

2021 **Invited Seminar Talk:** "The Cost of Iterative Computations at Scale", Irish Numerical Analysis Forum, Trinity College Dublin, online, July 1, 2021.

2021 "The Numerical Stability of Block Classical Gram-Schmidt Variants", SIAM Applied Linear Algebra (LA21), online, May 18, 2021.

2021 **Invited Seminar Talk:** "What Do We Know About Block Gram-Schmidt?", E-NLA Seminar, online, February 24, 2021.

2020 **Invited Seminar Talk:** "High Performance Mixed Precision Numerical Linear Algebra", Scientific Computing and Numerics (SCAN) Seminar, Cornell University, online, November 9, 2020.

2020 **Invited Seminar Talk:** "High Performance Mixed Precision Numerical Linear Algebra", Numerical Mathematics (NUMA) Seminar, KU Leuven, online, October 29, 2020.

2019 **Panelist:** "The Road to Exascale and Beyond Is Paved by Software: How Algorithms, Libraries and Tools Will Make Exascale Performance Real", IEEE International Conference for High Performance Computing, Networking, Storage and Analysis (Supercomputing '19), November 17-22, 2019.

2019 **Invited Talk:** "The Cost of Iterative Computations", Advanced Solvers for Modern Architectures, Muenster, Germany, November 11-13, 2019.

2019 **Invited Keynote Talk:** "Iterative Refinement in Three Precisions", 3rd Workshop on Power-Aware Computing (PACO '19), Magdeburg, Germany, November 5-6, 2019.

2019 "Iterative Refinement in Three Precisions", Parallel Solution Methods for Systems Arising from PDEs, Centre International De Rencontres Mathématiques (CIRM), Luminy, France, September 16-20, 2019.

2019 "On the Amplification of Rounding Errors", Advances in Numerical Linear Algebra: Celebrating the Centenary of the Birth of James H. Wilkinson, Manchester, UK, May 29-30, 2019.

2019 **Invited Keynote Talk:** "The Cost of Iterative Computations", High-Performance Computing in Science and Engineering (HPCSE19), Soláň, Czech Republic, May 20-23, 2019.

2019 **Invited Talk:** "Iterative Linear Algebra in the Exascale Era", Numerical Algorithms for High-Performance Computational Science, The Royal Society, London, UK, April 8-9, 2019.

2019 "The s-step Conjugate Gradient Method in Finite Precision", SIAM Computational Science and Engineering (CSE19), Spokane, Washington, February 25 - March 1, 2019.

2019 **Invited Lectures:** "High Performance Variants of Krylov Subspace Methods, Parts I and II", Seminar on Numerical Analysis and Winter School, Ostrava, Czech Republic, January 21-25, 2019.

2018 "Exploiting Multiprecision Hardware in Solving Linear Systems and Least Squares Problems", Current Problems in Numerical Analysis Seminar, Institute of Mathematics, Czech Academy of Sciences, Prague, Czech Republic, December 14, 2018.

2018 "Sparse Matrix Computations in the Exascale Era", Seminar of Numerical Mathematics, Faculty of Mathematics and Physics, Charles University, Prague, Czech Republic, November 15, 2018.

2018 "Error Bounds for Iterative Refinement in Three Precisions", SIAM Annual Meeting (AN18), Portland, Oregon, July 13, 2018.

2018 "High Performance Variants of Krylov Subspace Methods", SIAM Parallel Processing (PP18), Tokyo, Japan, March 8, 2018.

2017 "Preconditioned GMRES-based Iterative Refinement for the Solution of Sparse, Ill-Conditioned Linear Systems", International Conference on Preconditioning Techniques for Scientific and Industrial Applications (Preconditioning '17), Vancouver, Canada, August 2, 2017.

2017 **Invited Seminar Talk:** "Communication-Avoiding Algorithms: Challenges and New Results", Numerical Analysis and Scientific Computing Seminar, University of Manchester, UK, July 19, 2017.

2017 "Communication-Avoiding Algorithms: Challenges and New Results", SIAM Annual Meeting (AN17), Pittsburgh, Pennsylvania, July 13, 2017.

2017 **Invited Plenary Lecture:** "The Behavior of Synchronization-Reducing Variants of the Conjugate Gradient Method in Finite Precision", Householder Symposium XX, Blacksburg, Virginia, June 19, 2017.

2017 **Invited Plenary Lecture:** "High-Performance Krylov Subspace Method Variants and their Behavior in Finite Precision", High Performance Computing in Science and Engineering (HPCSE17), Soláň, Czech Republic, May 24, 2017.

2017 **Invited Seminar Talk:** "High-Performance Krylov Subspace Method Variants and their Behavior in Finite Precision", MORE Seminar, Charles University, Prague, Czech Republic, May 15, 2017.

2016 **Invited Seminar Talk:** "Performance and Stability Tradeoffs in Large-Scale Krylov Subspace Methods", Applied Mathematics and Scientific Computing Seminar, Temple University, November 16, 2016.

2016 "Communication-Avoiding Krylov Subspace Methods in Theory and Practice", SIAM Conference on Parallel Processing (PP16), Paris, France, April 12-15, 2016.

2015 "The s-Step Lanczos Method and its Behavior in Finite Precision", SIAM Conference on Applied Linear Algebra (LA15), Atlanta, Georgia, October 26-30, 2015.

2015 "Communication-Avoiding Krylov Methods in Theory and Practice", DMML Workshop, Berkeley, CA, October 23-24, 2015.

2015 "Efficient Deflation-Based Preconditioning for the Communication-Avoiding Conjugate Gradient Method", SIAM Conference on Computational Science and Engineering (CSE15), Salt Lake City, Utah, March 14-18, 2015.

2014 **Invited Seminar Talk:** "Communication-Avoiding Krylov Subspace Methods in Finite Precision", Linear Algebra and Optimization Seminar, ICME, Stanford University, December 4, 2014.

2014 "Avoiding Communication in Bottom Solvers for Geometric Multigrid Methods", 8th International Workshop on Parallel Matrix Algorithms and Applications (PMAA '14), Lugano, Switzerland, July 2-4, 2014.

2014 "Improving the Maximum Attainable Accuracy of Communication-Avoiding Krylov Subspace Methods", Householder Symposium XIX, Spa, Belgium, June 8-13, 2014.

2014 "Avoiding Synchronization in Geometric Multigrid", SIAM Conference on Parallel Processing for Scientific Computing (PP14), Portland, Oregon, February 18-21, 2014.

2013 "Efficient Deflation for Communication-Avoiding Krylov Methods", Numerical Analysis and Scientific Computation with Applications, Calais, France, June 24-26, 2013.

2012 "Improving the Stability of Communication-Avoiding Krylov Subspace Methods", SIAM Conference on Applied Linear Algebra (LA12), Valencia, Spain, June 18-22, 2012.

2012 "Exploiting Low-Rank Structure in Computing Matrix Powers with Applications to Preconditioning", SIAM Conference on Parallel Processing for Scientific Computing (PP12), Savannah, Georgia, February 15-17, 2012.

2012 "A Residual Replacement Strategy for Improving the Maximum Attainable Accuracy of Communication-Avoiding Krylov Subspace Methods", 9th International Workshop on Accurate Solution of Eigenvalue Problems, Napa Valley, CA, June 4-7, 2012.

Honors and Awards

2017 **Finalist, Householder Prize**, July 2017.

2013 **Rising Stars in EECS**, *Selected Participant*, MIT, November 2013.

2010–2013 **National Defense Science and Engineering Graduate Fellowship**.

2009 **CRA Outstanding Undergraduate Research Award, Runner-up**.

2008 **Microsoft Technical Scholarship Award**.

2007 **Lockheed Martin Distinguished Scholar Award**.

2007 **Computing and Communications Scholarship for Undergraduate Women**, University of Virginia.

Professional Activities

2024 **Organizing Committee Member**, *SIAM Conference on Applied Linear Algebra (LA24)*.

2023 **Program Committee Member**, *ACM Symposium on Parallelism in Algorithms and Architectures (SPAA '23), Orlando, USA, June 16-19, 2023*.

2023 **Program Committee Member**, *IEEE International Conference for High Performance Computing, Networking, Storage and Analysis (Supercomputing '23), Denver, USA, November 12-17, 2023*, Track: "Technical Papers - Algorithms".

2023 **Organizing Committee Member**, *SIAM Conference on Computational Science and Engineering (CSE23), February 26 - March 3, 2023*.

2022 **Organizing Committee Member**, *GAMM Workshop on Applied and Numerical Linear Algebra (GAMM ANLA '22), Prague, Czech Republic, September 22-23, 2022*.

2022 **Young Researchers' Minisymposium Co-organizer** (with J. Blechta), *"The Push to Exascale: High Performance Numerical Linear Algebra on Modern Hardware", 92nd Annual Meeting of the International Association of Applied Mathematics and Mechanics (GAMM '22), Aachen, Germany, August 15-19, 2022*.

2022 **Minisymposium Co-organizer** (with K. Soodhalter and P. Vacek), *"Reusing Information in Iterative Methods", 27th International Conference on Domain Decomposition Methods (DD '22), Prague, Czech Republic, July 25-29, 2022*.

2022 **Focus Session Co-organizer** (with I. Daužickaitė), *"Mixed Precision in Low-Rank Approximation and Randomization", ISC High Performance 2022, Hamburg, Germany, May 29 - June 2, 2022*.

2022 **Scientific Committee Member**, *E-NLA Seminar*.

2022–2025 **Co-chair**, *GAMM Activity Group on Applied and Numerical Linear Algebra*.

2022–2024 **Associate Editor**, *ACM Transactions on Parallel Computing (TOPC)*.

2022 **Program Committee Member**, *IEEE International Conference for High Performance Computing, Networking, Storage and Analysis (Supercomputing '22), St. Louis, USA, November 13-18, 2022*, Track: "Technical Papers - Algorithms".

2022 **Program Committee Member**, *IEEE International Conference on Cluster Computing (Cluster '22), Heidelberg, DE, September 6-9, 2022*, Track: "Algorithms and Applications".

2022 **Program Committee Member**, *International Conference on Parallel Processing (ICPP '22), Bordeaux, FR, August 29-September 1, 2022*, Track: "Multidisciplinary".

2022 **Program Committee Member**, *IEEE International Parallel and Distributed Processing Symposium (IPDPS '22), May 30 - June 3, 2022*, Track: "Algorithms".

2022 **Program Committee Member**, *Principles and Practice of Parallel Programming (PPoPP '22), February 16-22, 2022*.

2021–2023 **Access Committee Member**, *Partnership for Advanced Computing in Europe (PRACE)*.

2021 **Program Committee Member**, *IEEE International Conference for High Performance Computing, Networking, Storage and Analysis (Supercomputing '21), St. Louis, USA, November 14-19, 2021*, Track: "Technical Papers - Algorithms".

2021 **Program Committee Member**, *IEEE International Symposium on Computer Architecture and High Performance Computing (SBAC-PAD '21), Belo Horizonte, Brazil, October 26-29, 2021*, Track: "Parallel Applications and Algorithms".

2021 **Minisymposium Co-organizer** (with H. Anzt and U. Meier Yang), *"Multiprecision Numerics in Scientific High Performance Computing", Platform for Advanced Scientific Computing (PASC '21), online, July 5-9, 2021.*

2021 **Minisymposium Co-organizer** (with K. Lund and K. Soodhalter), *"Block Krylov Subspace Methods for Scientific Computing", SIAM Conference on Applied Linear Algebra (LA21), online, May 17-21, 2021.*

2021 **Program Committee Member**, *Platform for Advanced Scientific Computing (PASC '21), online, July 5-9, 2021*, Track: "Computer Science and Applied Mathematics".

2021 **Program Committee Member**, *IEEE International Parallel and Distributed Processing Symposium (IPDPS '21), online, May 17-21, 2021*, Track: "Algorithms".

2021 **Program Committee Member**, *Principles and Practice of Parallel Programming (PPoPP '21), online, February 27 - March 3, 2021.*

2020 **Program Committee Local Chair**, *Euro-Par 2020, online, August 24-28, 2020*, Track: "Parallel Numerical Methods and Applications".

2019 **Minisymposium Co-organizer** (with J. Šístek and P. Arbenz), *"Numerical Methods for Massively Parallel Computations", Modelling 2019, Olomouc, Czech Republic, September 16-20, 2019.*

2019 **Minisymposium Co-organizer** (with A. Greenbaum), *"Roundoff Error in High-Performance Implementations of CG/Lanczos-type Solvers", SIAM Conference on Computational Science and Engineering (CSE19), Spokane, Washington, February 25 - March 1, 2019.*

2019 **Primary Program Committee Member**, *IEEE International Parallel & Distributed Processing Symposium (IPDPS '19), Rio de Janeiro, Brazil, May 20-24, 2019*, Track: "Algorithms".

2018 **Program Committee Member**, *IEEE International Conference for High Performance Computing, Networking, Storage and Analysis (Supercomputing '18), Dallas, USA, November 11-16, 2018*, Tracks: "Technical Papers - Algorithms" and "Doctoral Showcase".

2018 **Program Committee Member**, *SIAM Workshop on Combinatorial Scientific Computing (CSC18), Bergen, Norway, June 6-8, 2018.*

2018 **Minisymposium Co-organizer** (with S. Cools), *"Scalable Communication-Avoiding and -Hiding Krylov Subspace Methods", SIAM Conference on Parallel Processing for Scientific Computing (PP18), Tokyo, Japan, March 7-10, 2018.*

2017 **Minisymposium Organizer**, *MS76/93: "Communication-Avoiding Algorithms", SIAM Annual Meeting (AN17), Pittsburgh, USA, July 10-14, 2017.*

2016 **Program Committee Member**, *Technical Papers - Algorithms Track, IEEE International Conference for High Performance Computing, Networking, Storage and Analysis (Supercomputing '16), Salt Lake City, USA, November 13-18, 2016.*

2016 **Minisymposium Co-organizer** (with L. Grigori), *"Minimizing Communication in Numerical Algorithms", SIAM Conference on Parallel Processing for Scientific Computing (PP16), Paris, France, April 12-15, 2016.*

2015 **Minisymposium Organizer**, *"Approaches to Reducing Communication in Krylov Subspace Methods", SIAM Conference on Applied Linear Algebra (LA15), Atlanta, Georgia, October 26-30, 2015.*

2009–2015 **Feature Editor for ACM XRDS Magazine**, Association for Computing Machinery, New York, NY.
Lead Issue Editor for Diversity in Computer Science (V.20,4), Scientific Computing (V.19,3)

2014 **Organizing Committee member**, *Rising Stars in EECS Workshop*, UC Berkeley.

Teaching Experience

2020– **NMNV468: Numerical Linear Algebra for Data Science and Informatics**, Instructor, Charles University, Spring 2020, Spring 2022.

2019 **NMNV565: High Performance Computing for Computational Science**, Instructor, Charles University, Winter 2019, Winter 2020, Winter 2021, Winter 2022.

2017 **MATH-UA 140: Linear Algebra**, Instructor, New York University, Fall 2017.

2016–2018 **DS-GA 1004: Big Data**, Instructor, New York University, Spring 2016, Spring 2017, Spring 2018.

2015–2016 **MATH-UA 120: Discrete Mathematics**, Instructor, New York University, Fall 2015, Fall 2016.