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Jesse Chan

Education

2008–2013 **Institute for Computational Engineering and Sciences (ICES)**, *The University of Texas*, Austin, TX.
- PhD in Computational Sciences, Engineering and Mathematics (CSEM).
  - Advisors: Leszek Demkowicz and Robert Moser.
  - Thesis: A Discontinuous Petrov-Galerkin Method for Convection-Diffusion Problems.
- MA in Computational Sciences, Engineering and Mathematics (CSEM).

2004–2008 **B.A. in Computational and Applied Mathematics**, *Rice University*, Houston, TX.

Professional experience

2016–present **Assistant Professor**, *Department of Computational and Applied Mathematics*, Rice University, Houston, TX.

2015–2016 **Postdoctoral Researcher**, *Department of Mathematics*, Virginia Tech, Blacksburg, VA.
- Mentor: Tim Warburton.

2013–2015 **Pfeiffer Postdoctoral Instructor**, *Department of Computational and Applied Mathematics*, Rice University, Houston, TX.
- Mentor: Tim Warburton.

2008–2013 **Research Assistant**, *The University of Texas*, Institute for Computational Engineering and Sciences, Austin, TX.

Summer 2011 **Research Assistant**, *Los Alamos National Laboratory*, Los Alamos, NM, XCP-4: Methods and Algorithms.

Research Interests

High order discontinuous Galerkin methods: I work primarily on high order discontinuous Galerkin (DG) methods for hyperbolic PDEs. I have developed time-domain DG solvers with optimal computational complexity at all polynomial degrees, as well as efficient low-memory implementations of high order DG methods for heterogeneous media, curved elements, and hybrid meshes. I also work on entropy stable DG methods for systems of nonlinear conservation laws, which significantly improve the robustness and stability of high order schemes by ensuring that the numerical solution satisfies a semi-discrete entropy inequality.

High performance computing: I am interested in high performance implementations of numerical methods for PDEs. I am interested in designing algorithms which exploit the parallelism of modern many-core architectures such as graphics processing units (GPUs). I have also worked on the distributed parallel implementation of high order adaptive DPG methods.

Discontinuous Petrov-Galerkin (DPG) methods: I have worked on the application of high order adaptive DPG methods to problems in fluid dynamics. In particular, I have investigated robust formulations for singularly perturbed convection-diffusion problems, as well as the extension of these methods to the nonlinear equations of compressible flow. I have also worked on preconditioning strategies for DPG methods.

Support and grants

Bernstein-Bezier Techniques for High Order Time-Domain Discontinuous Galerkin Methods (NSF DMS-1719818). 2017-present, $200,000, PI.

Collaborative Research: Improved Algorithms for Multiwave Imaging in Complex Media: Theory and Computation (NSF DMS-1712639). 2017-present, $200,000, Co-PI.

Publications (Google profile)

Submitted and in press

1. Discretely entropy stable weight-adjusted discontinuous Galerkin methods on curvilinear meshes. Jesse Chan, Lucas Wilcox. Submitted. Link
2. Leapfrog time-stepping for Hermite methods. Arturo Vargas, Thomas Hagstrom, Jesse Chan, T. Warburton. Submitted. Link
3. Weight-adjusted Bernstein-Bezier discontinuous Galerkin methods. Kaihang Guo, Jesse Chan. Submitted. Link
4. Efficient entropy stable Gauss collocation methods. Jesse Chan, David C. Del Rey Fernandez, Mark H. Carpenter. Link

Journal publications

1. On discretely entropy conservative and entropy stable discontinuous Galerkin methods. Jesse Chan. Journal of Computational Physics, Volume 362, 346-374, 2018. Link
2. Multi-patch discontinuous Galerkin isogeometric analysis for wave propagation: explicit time-stepping and efficient mass matrix inversion. Jesse Chan, John Evans. Computer Methods in Applied Mechanics and Engineering, Volume 333, Pages 22-54, 2018. Link
3. Weight-adjusted discontinuous Galerkin methods: matrix-valued weights and elastic wave propagation in heterogeneous media. Jesse Chan. International Journal for Numerical Methods in Engineering 113, 1779-1809, 2018. Link.
4. On the penalty stabilization mechanism for upwind discontinuous Galerkin formulations of first order hyperbolic systems. Jesse Chan, T. Warburton. Computers and Mathematics with Applications 74 (12), 3099-3110, 2017. Link
5. A GPU-accelerated nodal discontinuous Galerkin method with high-order absorbing boundary conditions and corner/edge compatibility. Axel Modave, Andreas Atle, Jesse Chan, T. Warburton. International Journal for Numerical Methods in Engineering 112 (11), 1659-1686, 2017. Link
6. GPU Acceleration of Hermite Methods for the Simulation of Wave Propagation. Arturo Vargas, Jesse Chan, Thomas Hagstrom, T. Warburton. In: Bittencourt M., Dumont N., Hesthaven J. (eds) Spectral and High Order Methods for Partial Differential Equations ICOSAHOM 2016. Lecture Notes in Computational Science and Engineering, vol 119. Springer, 2017. Link
7. Reduced storage nodal discontinuous Galerkin methods on semi-structured prismatic meshes. Jesse Chan, Russell J. Hewett, Zheng Wang, T. Warburton. Computers and Mathematics with Applications 73.5, 775-793, 2017. Link
8. Weight-adjusted discontinuous Galerkin methods: wave propagation in heterogeneous media. Jesse Chan, Russell J. Hewett and T. Warburton. SIAM Journal on Scientific Computing 39.6, A2935-A2961, 2017. Link
9. Weight-adjusted discontinuous Galerkin methods: curvilinear meshes. Jesse Chan, Russell J. Hewett and T. Warburton. SIAM Journal on Scientific Computing 39.6, A2395-A2421, 2017. Link
10. A Geometric Multigrid Preconditioning Strategy for DPG System Matrices. Nathan Roberts, Jesse Chan. Computers and Mathematics with Applications, 2018-2043, 2017. Link
11. Jesse Chan and T. Warburton. GPU-accelerated Bernstein-Bezier discontinuous Galerkin methods for wave problems. SIAM Journal on Scientific Computing 39.2, A628-A654, 2017. Link.

12. A. Vargas, Jesse Chan, T. Hagstrom, and T. Warburton. Variations on Hermite methods for wave propagation. Communications in Computational Physics 22.2: 303-337, 2017. Link
13. Ellis, Truman, Jesse Chan, and Leszek Demkowicz. Robust DPG Methods for Transient Convection-Diffusion. Building Bridges: Connections and Challenges in Modern Approaches to Numerical Partial Differential Equations. Springer International Publishing, 179-203, 2016. Link
14. C. Michoski, Jesse Chan, L. Engvall, and J.A. Evans. Foundations of the Blended Isogeometric Discontinuous Galerkin (BIDG) Method. Computer Methods in Applied Mechanics and Engineering, Volume 305, 658-681, 2016. Link
15. Jesse Chan, Z. Wang, A. Modave, J.F. Remacle, and T. Warburton. GPU-accelerated discontinuous Galerkin methods on hybrid meshes. Journal of Computational Physics, Volume 318, 142-168, 2016. Link
16. Jesse Chan and T. Warburton. A short note on a Bernstein-Bezier basis for the pyramid. SIAM Journal on Scientific Computing, 38(4), A2162-A2172, 2016. Link
17. Jesse Chan and T. Warburton. Orthogonal bases for non-affine pyramidal finite elements. SIAM Journal on Scientific Computing 38.2: A1146-A1170, 2016. Link
18. Jesse Chan and T. Warburton. hp-finite element trace inequalities for the pyramid. Computers and Mathematics with Applications, 69.6: 510-517, 2015. Link
19. Jesse Chan and T. Warburton. A comparison of high order interpolation nodes for the pyramid. SIAM Journal on Scientific Computing, 37:A2151-A2170, 2015. Link
20. Jesse Chan, L. Demkowicz, and R. Moser. A DPG method for steady viscous compressible flow. Computers and Fluids, 98:69-90, 2014. Link
21. Jesse Chan, J. A. Evans, and W. Qiu. A dual Petrov—Galerkin finite element method for the convection-diffusion equation. Computers and Mathematics with Applications, 68(11):1513-1529, 2014. Link
22. Jesse Chan, N. Heuer, T. Bui-Thanh, and L. Demkowicz. A robust DPG method for convection-dominated diffusion problems II: Adjoint boundary conditions and mesh-dependent test norms. Computers and Mathematics with Applications, 67(4):771-795, 2014. Link
23. T. Ellis, L. Demkowicz, and J. Chan. Locally conservative discontinuous Petrov—Galerkin finite elements for fluid problems. Computers and Mathematics with Applications, 68(11):1530-1549, 2014. Link

Technical reports

1. T. Ellis, L. Demkowicz, Jesse Chan, and R. Moser. Space-Time DPG: Designing a Method for Massively Parallel CFD. ICES REPORT 14-32, 2014. Link
2. Jesse Chan, J. Gopalakrishnan and L. Demkowicz. Global properties of DPG test spaces for convection-diffusion problems, ICES Report 13-05, 2013. Link
3. Jesse Chan, L. Demkowicz and M. Shashkov. Space-time DPG for shock problems, LA-UR 11-05511, 2011.
4. Jesse Chan, L. Demkowicz and R. Moser and N. Roberts. A New Discontinuous Petrov-Galerkin Method with Optimal Test Functions. Part V: Solution of 1D Burgers and Navier-Stokes Equations, ICES Report 10-25, 2010. Link

Invited presentations

2018 Entropy stable discontinuous Galerkin methods for nonlinear conservation laws (Colloquium talk, August 2018, Dept. of Mechanical Engineering, Rice University, Houston, TX).

Energy-based methods for time-dependent acoustic and elastic wave propagation (Workshop talk, August 2018, Numerical Analysis of Coupled and Multi-Physics Problems with Dynamic Interface, BIRS Oaxaca, Mexico).

Discretely entropy stable discontinuous Galerkin methods (Minisymposium talk, July 2018, WCCM, New York, New York).

Discretely entropy stable discontinuous Galerkin methods with arbitrary bases and quadratures (Minisymposium talk, July 2018, ICOSAHOM, London, United Kingdom).

Weight-adjusted discontinuous Galerkin methods for elastic wave propagation (Minisymposium talk, July 2018, ICOSAHOM, London, United Kingdom).

Discretely entropy stable discontinuous Galerkin methods (Minisymposium talk, June 2018, ECCM-ECFD, Glasgow, United Kingdom).

Efficient explicit solvers for multipatch discontinuous Galerkin isogeometric analysis (Minisymposium talk, June 2018, ECCM-ECFD, Glasgow, United Kingdom).

Discretely stable high order methods for nonlinear conservation laws, (Seminar talk, May 2018, Department of Mathematics, Virginia Tech, Blacksburg, VA).

Discretely entropy stable high order methods for nonlinear conservation laws, (Seminar talk, May 2018, NASA Langley Research Center, Hampton, VA).

Simulating waves and fluids: accuracy, stability, and high performance computing, (Invited talk, May 2018, Ken Kennedy Institute, Houston, TX).

Discretely stable high order DG methods, (Seminar talk, April 2018, Department of Mathematics, Texas A&M, College Station, TX).

Discretely entropy stable discontinuous Galerkin methods (Minisymposium talk, January 2018, Joint Mathematics Meetings, San Diego, CA).

2017 Provably stable high order discontinuous Galerkin methods for wave propagation and fluid flow (Seminar talk, November 2017, Fluid Dynamics Research Consortium, Pennsylvania State University, University Park, PA).

Discretely entropy stable discontinuous Galerkin methods (Seminar talk, October 2017, Department of Mathematics, University of Houston, Houston, TX).

Discretely entropy stable discontinuous Galerkin methods (Symposium talk, September 2017, Texas Applied Mathematics and Engineering Symposium, Austin, TX).

Bernstein-Bezier discontinuous Galerkin methods (Minisymposium talk, June 2017, 27th Biennial Numerical Analysis Conference, Glasgow, Scotland).

Efficient time-domain discontinuous Galerkin methods for wave propagation (ICES seminar, March 2017, University of Texas at Austin, Austin, TX).

Weight-adjusted discontinuous Galerkin methods for heterogeneous media and curvilinear meshes (SIAM Conference on Computational Science and Engineering, February 2017, Atlanta, GA).

2016 Finite Element and GPU Computing Seminar: the Bernstein-Bezier Discontinuous Galerkin method (Guest lecture, October 2016, Virginia Tech, Blacksburg, VA).

Efficient time-domain DG methods for wave propagation (Seminar talk, October 2016, Department of Mathematics, Southern Methodist University, Dallas, TX).

Efficient time-domain DG methods for wave propagation, (Seminar talk, July 2016 Department of Mathematics, Texas A&M, College Station, TX).

GPU-accelerated Bernstein-Bezier DG methods (Seminar talk, April 2016, Synergistic Environments for Experimental Computing seminar, Virginia Tech, Blacksburg, VA).

Recursive structures in Bernstein-Bezier matrices (Seminar talk, March 2016, Matrix Computations seminar, Virginia Tech, Blacksburg, VA).

GPU-accelerated Bernstein-Bezier discontinuous Galerkin methods (Seminar talk, February 2016, SIAM student chapter, Virginia Tech, Blacksburg, VA).

Designing Discontinuous Galerkin methods for high order efficiency (Seminar talk, February 2016, Dept. of Mathematics, University of Kansas, Lawrence, KS).

Designing Discontinuous Galerkin methods for high order efficiency (Seminar talk, January 2016, Dept. of Computational and Applied Mathematics, Rice University, Houston, TX).

Designing Discontinuous Galerkin methods for high order efficiency (Seminar talk, January 2016, Dept. of Mathematics, Baylor University, Waco, TX).

2015 GPU-accelerated DG methods on hybrid meshes (Seminar talk, November 2015, Dept. of Mathematical Sciences, University of Delaware, Newark, Delaware).

GPU-accelerated high order DG methods on hybrid meshes (Seminar talk, November 2015, TU Wien, Vienna, Austria).

DPG for the compressible Navier-Stokes equations (Workshop talk, November 2015, Workshop on Minimum Residual and Least Squares Finite Element Methods, Delft, Netherlands).

GPU-accelerated DG Methods on Hybrid Meshes (Workshop talk, September 2015, MFO 1540, Oberwolfach, Germany).

GPU-accelerated high order DG Methods on Hybrid Meshes (Seminar talk, September 2015, Dept. of Mathematics, Virginia Tech, Blacksburg, VA)

High order discontinuous Galerkin methods on hybrid meshes (Minisymposium talk, July 2015, SIAM Geosciences 15, Palo Alto, CA).

High order discontinuous Galerkin methods on pyramidal elements (Minisymposium talk, April 2015, PANACM, Buenos Aires, AR).

2013 DPG methods for convection-diffusion (Workshop talk, ICES/USACM Workshop on Minimum Residual and Least Squares Finite Element Methods, Austin, TX.)

Dual Petrov-Galerkin methods: an overview of theory/applications (Seminar talk, Dept. of Computational and Applied Mathematics, Rice University, Houston, TX).

A higher order DPG method for compressible flow problems (Seminar talk, Dept. of Computational and Applied Mathematics, Rice University, Houston, TX).

DPG Methods for Transport and the Inviscid Euler Equations (SIAM CSE, Boston, MA, 2013)

2012 A Discontinuous Petrov-Galerkin method for compressible flow problems (Seminar talk, The Boeing Company, Seattle, WA.)

2011 Application of a Discontinuous Petrov-Galerkin method to compressible flow problems (Minisymposium talk, ECCOMAS, Vienna, Austria).

Contributed presentations

2018 Weight-adjusted Bernstein-Bezier DG methods for wave propagation in heterogeneous media (Rice Oil and Gas HPC Conference, Houston, TX).

Discretely entropy stable discontinuous Galerkin methods (Finite Element Rodeo 2018, Baton Rouge, LA).

2017 Time-domain multi-patch discontinuous Galerkin methods (Minisymposium talk, USNCCM 14, Montreal, CA).

Weight-adjusted discontinuous Galerkin methods for acoustic and elastic wave propagation (Minisymposium talk, WAVES 2017, Minneapolis, MN).

Weight-adjusted discontinuous Galerkin methods for acoustic and elastic wave propagation (Rice Oil and Gas HPC Conference, Houston, TX).

2016 GPU-accelerated DG methods at high order (Minisymposium talk, Rice Oil and Gas HPC Conference, Rice University, Houston, TX).

GPU-accelerated Bernstein-Bezier DG methods (Minisymposium talk, ICSCA, Toronto, Canada).

GPU-accelerated Bernstein-Bezier DG methods for wave problems (Monash Workshop on Numerical PDEs, Monash University, Melbourne, Australia).

2015 High order discontinuous Galerkin methods on pyramidal elements (Minisymposium talk, SIAM CSE15, Salt Lake City, UT).

2014 High order discontinuous Galerkin methods on pyramidal elements (Minisymposium talk, SIAM CSE13, Boston, MA).

Dual Petrov-Galerkin methods for convection problems (Finite Element Rodeo, Austin, TX)

2013 A higher order adaptive DPG method for compressible flow problems (Minisymposium talk, USNCCM, Raleigh, NC)

DPG: A Robust, Higher Order Adaptive Method for Convection-dominated Diffusion Problems (Minisymposium talk, FEMTEC, Las Vegas, NV)

2012 Application of a Discontinuous Petrov-Galerkin method to convection-diffusion problems (Finite Element Rodeo, Houston, TX)

2011 Application of a Discontinuous Petrov-Galerkin Method to the Euler and Navier-Stokes Equations (Minisymposium talk, USNCCM, Minneapolis, MI.)

Posters

2018 GPU-accelerated Bernstein-Bezier weight-adjusted DG methods for wave propagation in heterogeneous media (Guo, K., and Chan, J.). Poster, Rice Oil and Gas HPC conference.

2016 GPU Accelerated Discontinuous Galerkin Method on Hybrid Meshes: Applications in Seismic Imaging (Wang, Z., Chan, J. L., Modave, A., and Warburton, T.). Poster, Rice Oil and Gas HPC conference.

GPU Accelerated Hermite Methods for the Simulation of Waves (Vargas, A., Chan, J. L., and Warburton, T.). Poster, Rice Oil and Gas HPC Conference.

2015 Efficient DG Methods on Hybrid Meshes (Invited workshop poster, Polytopal Element Methods in Mathematics and Engineering, Atlanta, Georgia).

Conference and workshop participation

2017 Scientific software days (University of Texas at Austin)

Finite element rodeo (University of Houston)

2016 Finite element circus (University of Maryland)

Teaching experience

Numbers in parentheses correspond to 1 for "Outstanding" and 5 for "Poor".

Fall 2018 **Numerical analysis (CAAM 553)**, *Graduate course*, Rice University, Department of Computational and Applied Mathematics.

Spring 2018 **Matrix Analysis (CAAM 335)**, *Undergraduate course*, Rice University, Department of Computational and Applied Mathematics, Lead instructor of a 3 section course.

Spring 2018 **Topics in numerical differential equations (CAAM 652)**, *Graduate course*, Rice University, Department of Computational and Applied Mathematics.

Fall 2017 **Numerical analysis (CAAM 553)**, *Graduate course*, Rice University, Department of Computational and Applied Mathematics.

Spring 2017 **Fundamentals of finite element methods (CAAM 552)**, *Graduate course*, Rice University, Department of Computational and Applied Mathematics, (Instructor effectiveness: 1.0, Rice mean: 1.723).

Fall 2016 **Numerical analysis (CAAM 553)**, *Graduate course*, Rice University, Department of Computational and Applied Mathematics, (Instructor effectiveness: 1.43, Rice mean: 1.73).

Spring 2015 **Differential Equations in Science and Engineering (CAAM 336)**, *Undergraduate course*, Rice University, Department of Computational and Applied Mathematics, Lead instructor of a 2 section course, (Instructor effectiveness: 1.32, Rice mean: 1.78).

Fall 2014 **Differential Equations in Science and Engineering (CAAM 336)**, *Undergraduate course*, Rice University, Department of Computational and Applied Mathematics, (Instructor effectiveness: 1.35, Rice mean: 1.77).

Spring 2013 **Matrix Analysis (CAAM 335)**, *Undergraduate course*, Rice University, Department of Computational and Applied Mathematics, (Instructor effectiveness: 1.82, Rice mean: 1.75).

Fall 2013 **Teaching assistant**, *Rice University, Department of Computational and Applied Mathematics*.
- Matrix Analysis (CAAM 335), undergraduate course.
- Computational Science I (CAAM 420), graduate course.

Spring 2012 **Teaching Assistant**, *The University of Texas at Austin*, Institute for Computational Engineering and Sciences.
- Mathematical Models in Applied Engineering and Sciences (CAM386L), graduate course.

PhD students

2017-present **Rice University**, Department of Computational and Applied Mathematics, Houston, TX.
Kaihang Guo, Masters/PhD student in CAAM.

Other mentoring experience

Summer 2018 **Rice University**, Department of Computational and Applied Mathematics, Houston, TX.
Matthew Schwartz, Rice University undergraduate.

Summer 2018 **Rice University**, Department of Computational and Applied Mathematics, Houston, TX.
Nigel Tan, Rice University MA student.

Summer 2018 **Rice University**, Department of Computational and Applied Mathematics, Houston, TX.
Khemraj Shukla, Visiting PhD student (with Maarten V. de Hoop)

2017-2018 **Rice University**, Department of Computational and Applied Mathematics, Houston, TX.
Undergraduate senior design team: Sanket Mehta, Meghana Pannala, Kyungnam Kim (Fall 2017 only).

Summer 2017 **Rice University**, Department of Computational and Applied Mathematics, Houston, TX.
Joey Munar, Rice undergraduate.

Spring 2017 **Rice University**, Department of Computational and Applied Mathematics, Houston, TX.
Eva (Chen) Chen, Rice undergraduate.

2014–2016 **Rice University**, Department of Computational and Applied Mathematics, Houston, TX.
Co-mentored Zheng Wang (with advisor T. Warburton), PhD student in CAAM.

2014–2016 **Rice University**, Department of Computational and Applied Mathematics, Houston, TX.
Co-mentored Arturo Vargas (with advisor T. Warburton), PhD student in CAAM.

Software

2018 **BBWADG**, *Dept. of Computational and Applied Mathematics*, Rice University, Houston, TX.

BBWADG, GPU-accelerated implementation of time-domain solvers for acoustic and elastic waves using Bernstein-Bezier weight-adjusted DG methods (with Kaihang Guo).

2015 **BBDG**, *Dept. of Mathematics*, Virginia Tech, Blacksburg, VA.

BBDG, a GPU-accelerated high order DG code using Bernstein-Bezier basis functions on unstructured tetrahedral meshes (with Tim Warburton).

2014–2015 **Nodes**, *Dept. of Computational and Applied Mathematics*, Rice University, Houston, TX.

Nodes, a library of routines to compute optimized interpolation nodes for high order Lagrange finite elements (with Tim Warburton).

2010–2013 **Camellia**, *Institute for Computational Engineering and Sciences (ICES)*, The University of Texas, Austin, TX.
Contributor to Camellia, a high order adaptive MPI code developed by Nathan Roberts and built upon the Sandia Trilinos library.

University activities, service, and outreach

2018 Rice University Orientation week, August 2018: academic fair

2018 Rice University commencement, May 2018: graduate marshal

2018 Greater Houston Community Foundation Scholarship reviewer

2018 Rice University undergraduate recruiting, April 2018: Owl Days reception

2018 NSF panelist.

2018 World Congress on Computational Mechanics, July 2018: 3-session minisymposium co-organizer.

2017 Texas Applied Math and Engr. Symposium, September 2017: poster session judge.

2017 Rice University Orientation week, August 2017: academic fair

2017 Rice University commencement, May 2017: graduate marshal

2017 Rice University convocation, May 2017: doctoral hooding

2017 Rice University undergraduate recruiting, April 2017: Owl Days reception

2017 SIAM Computational Science and Engineering: two-session minisymposium co-organizer, poster session judge.

2013–present Will Rice College Associate.

2012–present Reviewer for: SIAM/ASA Journal on Uncertainty Quantification, SIAM Journal on Numerical Analysis, Computational Mechanics, Journal of Computational Science, Journal of Scientific Computing, Journal of Computational Physics, Computers and Mathematics With Applications, SIAM Journal on Scientific Computing, Mathematical Modelling and Numerical Analysis, International Journal of High Performance Computing, Computer Physics Communications, Computer Methods in Applied Mechanics and Engineering, Applied Numerical Mathematics.

2010–2013 Chair/co-organizer of the UT Austin ICES Forum/Babuška Seminar Series. Worked with Dr. Ivo Babuška to organize a bi-weekly seminar series aimed at exposing graduate students to a wide variety of scientific areas and applications.

2010–2012 Volunteer math coach with Austin Partners in Education.

2006–2008 Secretary, Rice University student chapter of SIAM.

Departmental service

2018 Rice University CAAM department: Data Science Initiative recruiting

2018 Rice University CAAM department: graduate student recruiting

2017-2018 Rice University CAAM department: graduate committee

2017-2018 Rice University CAAM department: numerical analysis examination committee

2017 Rice University CAAM department: graduate student recruiting

2017 Rice University CAAM department: faculty search committee

2016-2018 Rice University CAAM department: colloquium chair.

Fall 2018 Visitors hosted: Jason Hicken, Matthew Brake, Pedram Hassanzadeh

Spring 2018 Visitors hosted: Mark H. Carpenter, Annalisa Quaini, Andreas Mang, Robert C. Kirby, Ankit Patel, Ming Zhao

Fall 2017 Visitors hosted: Matthias Taus, David Fuentes, David M. Williams, Ernest Ryu

Spring 2017 Visitors hosted: John Evans, Joseph Young, Maxim Olshanskii, Daniel Appelo

Fall 2016 Visitors hosted: Sebastian Acosta

PhD and Masters committees

2018 MA: Jonas Actor, Computational and Applied Mathematics, Rice University

2018 PhD (proposal): Kaipeng Li, Electrical and Computer Engineering, Rice University

2018 MA: Christopher Thiele, Computational and Applied Mathematics, Rice University

2018 PhD: Ruichao Ye, Computational and Applied Mathematics, Rice University

2017 MA: Peter Geldermans, Computational and Applied Mathematics, Rice University

2017 MA: Jeremy Tillen, Computational and Applied Mathematics, Rice University

2017 PhD: Wanli Cheng, Mathematics, University of Houston

Awards and honors

2015 **Oberwolfach Institute for Mathematics:** US Junior Oberwolfach Fellow.

2015 **Workshop on polytopal element methods:** travel award.

2013–2015 **Rice University:** Pfeiffer Postdoctoral Fellowship

2013 **UT Austin:** Graduate School Professional Development Travel Award

2008–2012 **UT Austin:** Computational and Applied Mathematics Fellowship

2004–2008 **Rice University.:** National Merit Scholarship, Chevron-Texaco REACH Scholarship, Louis J. Walsh Scholarship in Engineering

2007 **Rice University:** Meritorious Winner, Mathematical Competition in Modeling

Fall 2004, Spring 2006 **Rice University:** President's Honor Roll

References available upon request.