

Samantha H. Daly

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EDUCATION

Ph.D.	2007	Mechanical Engineering, Div. Engr. Appl. Science	Caltech
M.S.	2002	Mechanical Engineering, Div. of Eng. and Appl. Science	Caltech
B.S.	2001	Mechanical Engineering	Dartmouth
B.A.	2001	Mechanical Engineering modified with Mathematics	Dartmouth

PROFESSIONAL EXPERIENCE

7/20 – Present	Professor, Department of Mechanical Engineering, University of California at Santa Barbara
3/23 – 7/23	Faculty Fellow, Université Paris Sciences & Lettres
7/21 – 7/22	Graduate Chair, (Interim) Department of Mechanical Engineering, University of California at Santa Barbara
7/16 – 6/20	Associate Professor, Department of Mechanical Engineering, University of California at Santa Barbara
6/19 – 9/19	Visiting Faculty, Division of Engineering and Applied Science, Caltech
5/14 – 7/16	Associate Professor, Department of Mechanical Engineering, University of Michigan (courtesy appointment in MSE)
1/15 – 5/15	International Center for Materials Research (ICMR) Researcher in Residence, University of California at Santa Barbara
1/11 – 5/14	Assistant Professor, Department of Materials Science and Engineering (by Courtesy Appointment), University of Michigan, Ann Arbor
1/08 – 5/14	Assistant Professor, Department of Mechanical Engineering, University of Michigan, Ann Arbor.

RESEARCH ACTIVITIES

Research in the Daly group lies at the intersection of experimental mechanics, data science, and materials science. The group is engaged in the development of new methods for multi-scale material characterization and in the integration of physics-informed machine learning to understand the deformation and failure mechanisms of structural metallic alloys and composites.

RESEARCH AWARDS AND HONOURS

- *Best Paper Award*, SynS & ML, International Conference on Machine Learning (ICML 2023), 2023.
- Faculty Fellow, Université Paris Sciences & Lettres, 2023.
- Annual Speaker at National Academy of Engineering – Mechanical Division (1 speaker invited nationwide), 2022.
- ASME Materials Division Centennial Mid-Career Award, 2022.
- Fellow of the American Society of Mechanical Engineers (ASME), 2021.
- Friend of the Committee – US National Committee on Theoretical and Applied Mechanics, 2021.
- Speaker, Gordon Conference on Physical Metallurgy, Manchester, New Hampshire, July 7-12, 2019.
- Cover, Journal of Experimental Mechanics, 2019.
- Robert Caddell Memorial Materials & Manufacturing Award, The University of Michigan, 2018.
- Conference Plenary, The British Society for Strain Measurement, 2017.

- Eshelby Mechanics Award, 2016.
- James W. Dally Award for Contributions to Education and Research Excellence in Experimental Mechanics, Society of Experimental Mechanics, 2016.
- National Academy of Engineering U.S. Frontiers of Engineering Symposium Attendee, 2015.
- Speaker, Gordon Conference on Physical Metallurgy, 2015.
- Cover, Journal of Materials Science, July 2015.
- Student-Nominated for the Golden Apple Teaching Award, University of Michigan, 2015.
- College of Engineering 1938E Award, University of Michigan, 2014.
- Presentation to University of Michigan Board of Regents (as one of three university-wide example promotions to tenure), 2014.
- Lindseth Lecturer, Cornell University, 2014.
- Journal of Strain Analysis Young Investigator Award, 2014.
- Student-Nominated for the Golden Apple Teaching Award, University of Michigan, 2014.
- Mechanical Engineering Department Achievement Award, University of Michigan, 2014.
- *Best Paper of the Year*, International Journal of Solids and Structures, 2014.
- NSF CAREER Award, 2013.
- Robert Caddell Memorial Materials & Manufacturing Award (with graduate student Adam Kammers), The University of Michigan, 2013.
- Hetényi Award, Society of Experimental Mechanics, 2013 (for *Best Paper of the Year*, Experimental Mechanics, 2011).
- Young Investigator Award (AFOSR YIP), Air Force Office of Scientific Research, 2012.
- Orr Award for Early Career Excellence in Fatigue, Fracture, and Creep, 2011.
- Early Career Research Program Award, Office of Basic Energy Sciences, Department of Energy Office of Science, 2010.
- Alumni Day Seminar Speaker, California Institute of Technology, 2007.
- Everhart Award (for excellence in research), California Institute of Technology, 2007.
- Charles D. Babcock Award (for excellence in teaching), California Institute of Technology, 2007.

JOURNAL PUBLICATIONS

1. Tulshibagwale N., Brodnik N., Muir C., Hilmas A., Kiser J.D., Smith C., Almansour A.S., Presby M., Daly S. Acoustic Emission in Ceramic Matrix Composites, *Applied Mechanics Reviews* (invited); in preparation - preprint available, 2024.
2. Muir C., Gibson T., Hilmas A., Almansour A.S., Sevensen K., Kiser J.D., Pollock T.M., Daly S., Smith C. Autoencoders Reveal Compact Frequency Distribution of Broken Fibers in SiC_f/SiC Composites. *Submitted*, 2024.
3. Gomez Alvarado S., Zoghlin E., Jackson A., Kautzsch L., Plumb J., Aling M., Salinas A., Pokharel G., Pang Y., Gomez R., Daly S., Wilson S. LOKII Project: Advances in High-Pressure Laser Floating Zone Growth. *Submitted*, 2024. arXiv: 2311.03671.
4. Jangid D., Brodnik N., Echlin M.P., Pollock T., Daly S., Manjunath B.S. Q-RBSA: High-Resolution 3D EBSD Map Generation using an Efficient Quaternion Transformer Network. *Npj Computational Materials*. Accepted, 2024. <http://arxiv.org/abs/2303.10722>
5. Brodnik N., Carton S., Muir C., Ghosh S., Downey D., Echlin M.P., Pollock T.M., Daly S. Perspective: Large Language Models in Applied Mechanics, *J. Appl. Mech.* Oct 2023, 90(10): 101008, 2023. <https://doi.org/10.1115/1.4062773> **(Invited Perspective)**
6. Jangid D., Brodnik N., Echlin M.P., Daly S., Pollock T., Manjunath B.S. Titanium 3D Microstructure for Physics-based Generative Models: A Dataset and Primer. *40th International Conference on Machine Learning, July 2023, Hawaii*. **(Best Paper Award, SynS & ML)**

7. Muir C., Swaminathan B., Musaffar A.K., McCarthy N.R., Almansour, A.S., Smith C., Pollock T.M., Kiser J.D., Smith C., Daly S., Sevenser K. In Situ Crack Opening Displacement Growth Rates of SiC/SiC Ceramic Matrix Minicomposites. *Journal of European Ceramics Society*, 43 (9), 3950-3958, 2023.
8. Rossin J. Leser P. Benzing J. Torbet C. Dillon P. Smith. S. Daly S. Pollock T. Nondestructive quantification of single crystal elasticity in additively manufactured cobalt-nickel, nickel, and titanium alloys. *NDT&E International*, 102803, 2023.
9. Muir C., Tulshibagwale N., Furst A., Swaminathan B., Almansour A.S., Sevenser, K., Presby M., Kiser J.D., Pollock T.M., Daly S., Smith C. Quantitative Benchmarking of Acoustic Emission Machine Learning Frameworks for Damage Mechanism Identification. *Integrating Materials and Manufacturing Innovation*, 1-12, 2023. **(Awarded Editor's Choice – Free Access Article)**
10. Brodnik N.R., Muir C., Tulshibagwale N., Rossin R., Echlin M.L., Hamel C., Kramer S., Pollock T.M., Kiser D., Smith C., Daly S. Perspective: Machine Learning in Experimental Solid Mechanics. *Journal of Mechanics and Physics of Solids*, 105231, 2023. **(Special Issue, Invited Perspective)**
11. Plumb J., Poudyal I., Dally R., Daly S., Wilson S., Islam Z. Dark Field X-ray Microscopy Below Liquid-Helium Temperature: The Case of NaMnO₂. Accepted, *Materials Characterization*, 2023. 10.48550/arXiv.2211.09247
12. Jangid D., Brodnik N.R., Goebel M., Khan A., Majeti S., Echlin M.P., Pollock T.M., Daly S., Manjunath B.S. EBSD-SR: Super-Resolution for Electron Backscatter Diffraction Maps Using Physics-Guided Neural Networks. *npj Computational Materials*, 8 (255), 2022.
13. Jangid D., Brodnik N.R., Khan A., Goebel M., Echlin M.P., Pollock T.M., Daly S., Manjunath B.S. 3D Grain Shape Generation in Polycrystals Using Generative Adversarial Networks. *Integrating Materials and Manufacturing Innovation*, 11 (1), 71-84, 2022.
14. Chen Z., Yaghoobi M., Sundararaghavan V., Allison J., Daly S. The Effects of Microstructure on Deformation Twinning in Mg WE43, *Materials Science and Engineering A*, 859 (144189), 2022.
15. Rossin J., Leser P., Pusch K., Frey C., Vogel S., Saville A., Torbet C., Clarke A., Smith S., Daly S., Pollock T. Single Crystal Elastic Constants of Additively Manufactured Components Determined by Resonant Ultrasound Spectroscopy. *Materials Characterization*, 192: 112244, 2022.
16. Yaghoobi M., Chen Z., Murphy-Leonard A., Sundararaghavan V., Daly S., Allison J. Deformation Twinning and Detwinning in Extruded Mg-4Al: In Situ Experiment and Crystal Plasticity Simulation, *International Journal of Plasticity*, 103345, 2022.
17. Geathers J. Torbet C.J., Jones J.W. Daly, S. Examining the Role of Water Vapor on Small Fatigue Crack Growth Behavior in Ti-6242S Using Ultrasonic Fatigue and Scanning Electron Microscopy. *International Journal of Fatigue*, 156: 106672, 2022.
18. Yaghoobi M., Chen Z., Sundararaghavan V., Daly S., Allison J. Crystal Plasticity Finite Element Modeling of Extension Twinning in WE43 Mg Alloys: Calibration and Validation, *Integrating Materials and Manufacturing Innovation*, 10(3): 488-207, 2021.
19. Rossin J., Leser P., Pusch K., Smith S., Daly S., Pollock T. Bayesian Inference of Elastic Constants and Texture Coefficients in Additively Manufactured Cobalt-Nickel Alloys Using Resonant Ultrasound Spectroscopy. *Acta Materialia* 220, 117287, 2021.
20. Muir C., Swaminathan B., Fields K., Almansour A.S., Sevenser K., Smith C., Presby M., Kiser J.D., Pollock T.M., Daly S. A Machine Learning Framework for Damage Mechanism Identification from Acoustic Emissions in Unidirectional SiC/SiC Composites, *npj Computational Materials*, 7 (1), 1-10, 2021.
21. Muir C., Swaminathan B., Almansour A.S., Sevenser K, Smith C, Presby M, Kiser JD, Pollock TM, Daly S. Damage Mechanism Identification in Composites via Machine Learning and Acoustic Emission, *npj Computational Materials* 7 (1), 1-15, 2021. **(Review article)**
22. Swaminathan B., McCarthy N.R., Almansour A.S., Sevenser K., Musaffar A.K., Pollock T., Kiser J.D., Daly S. Interpreting Acoustic Energy Emission in SiC/SiC Minicomposites through Modeling of Fracture Surface Areas. *Journal of the European Ceramic Society* 41 (14), 6883-6893, 2021.

23. Sperry R., Han H., Chen Z., Daly S., Crimp M., Fullwood D. Comparison of EBSD, DIC, AFM, and ECCI for Active Slip System Identification in Deformed Ti. *Materials Characterization*, 173, 110941, 2021.
24. Harr M., Daly S., Pilchak A. The Effect of Temperature on Slip in Microtextured Ti-6Al-2Sn-4Zr-2Mo under Dwell Fatigue. *International Journal of Fatigue*, 147, 106173, 2021.
25. LePage W., Shaw J, Daly S. Effects of Texture on the Structural and Functional Fatigue of a NiTi Shape Memory Alloy. *International Journal of Solids and Structures*, Volume 221, 150-164, 2021. **(Invited)**
26. Ganesan S., Yaghoobi M., Githens A. Chen Z., Daly S. Allison J. Sundararaghavan V. The Effects of Heat Treatment on the Response of WE43 Mg Alloy: Crystal Plasticity Finite Element Simulation and Experiment, *International Journal of Plasticity*, Vol 137, 102917, 2021.
27. Chen Z, Daly S. Automated Identification of Active Deformation Twin Systems in Mg WE43 from SEM DIC. *Materials Characterization*, Volume 169, 110628, 2020.
28. Rossin J., Goodlet B. Torbet, Musinski W., Miller J. Groeber M., Mayes A., Biedermann E., Smith S., Daly S., Pollock T. Assessment of Grain Structure Evolution with Resonant Ultrasound Spectroscopy in Additively Manufactured Nickel Alloys, *Materials Characterization*, 110501, 2020.
29. Linne M., Bieler T., Daly S. The Impact of Microstructure on the Relationship between Grain Boundary Sliding and Slip Transmission in High Purity Aluminum. *International Journal of Plasticity*, 135(1): 102818, 2020.
30. Swaminathan B., McCarthy N.R., Almansour A.S., Kiser J.D., Sevens K., Pollock T., Daly S. Microscale Characterization of Damage Accumulation in CMCs. *Journal of the European Ceramic Society*. 2020. <https://doi.org/10.1016/j.jeurceramsoc.2020.05.077> **(Invited)**
31. Reedlunn B., LePage W., Daly S., Shaw J. Axial-Torsion Behavior of Superelastic Tubes: Part I, Proportional Isothermal Experiments. *International Journal of Solids and Structures*, 2020. 10.1016/j.ijsolstr.2020.03.018
32. Githens A., Ganesan S., Chen Z., Allison J., Sundararaghavan V., Daly S. Characterizing the Microscale Deformation Mechanisms and Macroscopic Tensile Properties of a High Strength Magnesium Rare-Earth Alloy: A Combined Experimental and Crystal Plasticity Approach. *Acta Materialia*, 186, 77-94, 2020.
33. Combs J., Levin E., Cheng C., Daly S., Yeralan S., Duerig T. The Effects of Heat Treatment on the Magnetic Properties of Nitinol. *Shape Memory and Superelasticity*, 5: 1-7, 2019. **(Special Issue)**
34. A. Venkataraman, M. Linne, S. Daly, M. Sangid. Criteria for the Prevalence of Grain Boundary Sliding as a Deformation Mechanism. *Materialia*, 8: 100499, 2019.
35. M. Linne and S. Daly. Data Clustering for the High-Resolution Alignment of Microstructure and Strain Fields. *Materials Characterization*, 158: 109984, 2019.
36. M. Linne, A. Venkataraman, M. Sangid, S. Daly. Grain Boundary Sliding and Slip Transmission in High Purity Columnar Aluminum at Elevated Temperature. *Experimental Mechanics*, 59(5), 643-658, 2019. **(Invited) (Cover Article)**
37. Chen Z. and Daly S. Deformation Twin Identification in Magnesium through Clustering and Computer Vision. *Materials Science and Engineering A*, 736: 61-75, 2018.
38. L. Aagesen, et al. (39 authors). PRISMS- An Integrated, Open Source Framework for Accelerating Predictive Structural Materials Science. *JOM*, 70(10), 2298-2314, 2018.
39. Chen Z., Lenthe W., Stinville J.C., Echlin M., Pollock T., Daly S. High-Resolution Deformation Mapping Across Large Fields of View Using Scanning Electron Microscopy and Digital Image Correlation. *Experimental Mechanics*, 58(9): 1407-1421, 2018.
40. W. Lenthe, JC Stinville, M Echlin, Z Chen, S Daly, T Pollock. Advanced Detector Signal Acquisition and Electron Beam Scanning for High Resolution SEM Imaging. *Ultramicroscopy*, 195, 193-200, 2018.
41. W. LePage, A. Ahadi, W. Lenthe, QP Sun, T. Pollock, J. Shaw, S. Daly. Fatigue Crack Growth in Nanocrystalline NiTi SMA. *J Mat Res*, 33(2): 91-107, 2018. **(Invited)**

42. R. Watkins, B. Reedlunn, S. Daly, J. Shaw. Uniaxial, Pure Bending and Buckling Experiments on Superelastic NiTi Rods and Tubes. *IJSS*, 146, 1-28, 2018.
43. W. LePage, J. Shaw, S. Daly. Optimum Paint Sequence for Speckle Patterns in Digital Image Correlation. *Experimental Techniques*, 41(5): 557-563, 2017.
44. K. Sevener, J. Tracy, Z. Chen, J. Kiser, S. Daly. Crack Opening Behavior in Ceramic Matrix Composites. *Journal of the American Ceramic Society*, 2017. Doi: 10.1111/jace.14976
45. J. Tracy, A. Waas, S. Daly. Statistical Analysis of the Influence of Microstructure on Damage in Fibrous Ceramic Matrix Composites. *International Journal of Applied Ceramic Technology*, In Press, 2017.
46. Gong J. and Daly S. Microscale Repeatability of the Shape Memory Effect in NiTi Wires. *SMST*, 2:298-309, 2016. **(Invited)**
47. Githens A. and Daly S. Patterning Corrosion-Susceptible Metallic Alloys for Digital Image Correlation in a Scanning Electron Microscope. *Strain*, 53(1): e12215; DOI: 10.1111/str.12215, 2016.
48. Chen Z. and Daly S. Active Slip System Identification in Polycrystalline Metals by Digital Image Correlation (DIC). *Experimental Mechanics*, 57(1), 115-127, 2017.
49. W. LePage, S. Daly, J. Shaw. Cross Polarization for Enhanced Digital Image Correlation Fidelity. *Experimental Mechanics*, 56(6): 969-985, 2016.
50. M. Kimiecik, J.W. Jones, S. Daly. The Effect of Microstructure on Stress-Induced Martensitic Transformation under Cyclic Loading in the SMA Nickel-Titanium. *JMPS*, 89: 16-30, 2016.
51. Tracy J., Daly S., Sevener K. Multi-Scale Damage Characterization in Continuous Fiber Ceramic Matrix Composites. *Journal of Materials Science*, 50(15): 5386-5299, 2015.
52. M. Kimiecik, J.W. Jones, S. Daly. Grain Orientation Dependence of Martensitic Phase Transformation in the Shape Memory Alloy Nickel-Titanium. *Acta Materialia*, 94: 214-223, 2015.
53. J. Tracy, A. Waas, S. Daly. Experimental Assessment of Fracture Toughness in Ceramic Matrix Composites Using the J-integral with Digital Image Correlation Part I: Methodology and Validation. *Journal of Materials Science*, 50(13): 4646-4658, 2015. **(Cover Article)**
54. J. Tracy, A. Waas, S. Daly. Experimental Assessment of Fracture Toughness in Ceramic Matrix Composites Using the J-integral with Digital Image Correlation Part II: Application to SiC/SiC CMCs. *Journal of Materials Science*, 50(13): 4659-4671, 2015.
55. A. Kammers, J. Wongsangam, T. Langdon, S. Daly. The Microstructure Length Scale of Strain Rate Sensitivity in Ultrafine-Grained Aluminum. *Journal of Materials Research*, 30(07): 981-992, 2015.
56. Geathers J., Torbet C.J., Jones J.W., Daly S. Investigating Environmental Effects on Small Fatigue Crack Growth in Ti-6242S Using Combined Ultrasonic Fatigue and Scanning Electron Microscopy. *International Journal of Fatigue*, 70: 154-162, 2015.
57. Tracy J., Waas A., Daly S. A New Experimental Approach for In Situ Damage Assessment in Fibrous Ceramic Matrix Composites at High Temperature. *Journal of the American Ceramic Society*, 98(6): 1898-1906, 2015.
58. A. Kammers, J. Wongsangam, T. Langdon, S. Daly. The Effect of Microstructure Heterogeneity on Microscale Deformation Mechanisms in Ultrafine-Grained Aluminum. *Journal of Materials Research*, 29(15): 1664-1674, 2014.
59. B. Reedlunn, C. Churchill, E. Nelson*, J. Shaw, S. Daly. Tension, Compression, and Bending of Superelastic Shape Memory Alloy Tubes. *JMPS*, 63: 506-537, 2014.
60. Kammers A., Daly S. Digital Image Correlation Under Scanning Electron Microscopy: Methodology and Validation. *Experimental Mechanics*, 53:1743-1761, 2013.
61. Kammers A., Daly S. Self-Assembled Nanoparticle Surface Patterning for Improved Digital Image Correlation in a Scanning Electron Microscope, *Experimental Mechanics*, 53(8):1333-1341, 2013.
62. M. Kimiecik, J.W. Jones, S. Daly. Quantitative Analysis of Phase Transformation in Ni-Ti Shape Memory Alloys. *Advanced Materials & Processes* April 2013.

63. B. Reedlunn, S. Daly, J.A. Shaw. Superelastic Shape Memory Alloy Cables: Part I – Isothermal Tension Experiments. *IJSS*, 50(20-21): 3009-3026, 2013. **(Best Paper of the Year & Reached #1 Most Downloaded)**
64. B. Reedlunn, S. Daly, J.A. Shaw. Superelastic Shape Memory Alloy Cables: Part II – Isothermal Subcomponent Responses. *IJSS*, 50(20-21): 3027-3044, 2013. **(Reached #10 Most Downloaded)**
65. K. Kim, S. Daly. The Effect of Texture on Stress-Induced Martensite Formation in Nickel-Titanium. *Smart Materials and Structures*, 22(7): 075012, 2013.
66. M. Kimiecik, J.W. Jones, S. Daly. Quantitative Studies of Microstructural Phase Transformation in Nickel-Titanium. *Materials Letters*, 95: 25-29, 2013.
67. B. Reedlunn, S. Daly, L. Hector, P. Zavattieri, J. Shaw. Tips & Tricks for Characterizing Shape Memory Wire Part 5: Full-field Strain Measurement by Digital Image Correlation. *Experimental Techniques*, 37(3): 62-78, 2013.
68. A. Kammers, S. Daly. Small-Scale Patterning Methods for Digital Image Correlation Under Scanning Electron Microscopy. *Meas. Sci. Technol.* 22(12) 125501, 2012.
69. K. Kim, S. Daly. Martensite Strain Memory in the Shape Memory Alloy NiTi under Mechanical Cycling. *Invited publication: Experimental Mechanics* 51(4): 641-652, 2011. **(Best Paper of the Year)**
70. S. Desindes, S. Daly. The Small-Scale Yielding of Shape Memory Alloys under Mode III Fracture. *International Journal of Solids and Structures*, 47(5): 730-737, 2010.
71. S. Daly, D. Rittel, K. Bhattacharya, G. Ravichandran. Large Deformation of Nitinol Under Shear Dominant Loading. *Invited publication: Experimental Mechanics*, 49(2): 225-233, 2009.
72. S. Daly, G. Ravichandran, K. Bhattacharya. Stress-Induced Martensitic Transformation in Thin Sheets of Nitinol. *Acta Materialia*, 55:3593-3600, 2007.
73. S. Daly, A. Miller, G. Ravichandran, K. Bhattacharya. An Experimental Investigation of Crack Initiation in Thin Sheets of Nitinol. *Acta Materialia*, 55:6322-6330, 2007.

CHAPTERS IN BOOKS

1. Daly, S.H. 2010. Digital Image Correlation in Experimental Mechanics for Aerospace Materials and Structures. *Encyclopedia of Aerospace Engineering*.

SHORT COURSES

1. Computer Vision for Microstructural Analysis, *TMS*, November 2021 (virtual; co-instructor Prof. Liz Holm, CMU)
2. Practical Applications of DIC. *Confluent Medical Technologies*, February 2019, Fremont, California.
3. Deformation Tracking at the Microstructural Length Scale. *UC Santa Barbara*, August 2013, Santa Barbara, California.
4. Principles and Techniques of Digital Image Correlation. *Microscopy and Microanalysis 2011*, August 7-11, Nashville, Tennessee.

RECENT INVITED PRESENTATIONS

- HR-DIC Symposium, Evry, France, June 2023
- Mechamat/Euromech, June 2023
- Center for Mathematical Morphology, June 2023
- MINES ParisTech, February 2023
- Drucker Symposium, ASME ICEME Annual Conference (session keynote), October 2022
- Mid-Career Centennial Award Lecture, ASME ICEME Annual Conference, October 2022
- University of Houston – Mechanical Engineering Distinguished Seminar Series, October 2022
- Texas A&M University, October 2022
- Computational and Experimental Analysis of Damage at Interfaces Symposium, Society of Engineering Science (SES) Annual Conference (session keynote), October 2022

- Eringen Symposium, Society of Engineering Science (SES) Annual Conference, October 2022
- National Academy of Engineering Annual Meeting - Mechanical Engineering Section, October 2022 (one speaker chosen per year)
- Dow Corning, June 2022
- Society of Experimental Mechanics, June 2022 (session keynote)
- International Workshop on Mechanics of Polycrystals, Paris, May 2022
- Mechanics Workshop (invitation only), Houston TX, March 2022
- MINES ParisTech, February 2022
- MIT, December 2021
- Indian Institute of Technology Bombay (IIT Bombay), November 2021
- Caltech, October 2021 (Student selected speaker)
- Society of Engineering Science (SES), SES Annual Conference - October 2021 (invited by SES Month 2021 organizing committee as one of 5 talks; on ML in experimental mechanics)

PROFESSIONAL ACTIVITIES

Executive Boards

- Executive Committee, ASME Applied Mechanics Division, 2022– current
- Vice Chair, U.S. National Committee of Theoretical and Applied Mechanics, 2024-current
- Vice President, Society of Experimental Mechanics, 2024-current
- Member-at-Large, U.S. National Committee of Theoretical and Applied Mechanics, 2023-2024.
- Executive Board, Member at Large, Society of Experimental Mechanics, 2019-2021
- Board of Directors, ASM – SMST, 2015-2019
- Board of Directors, Society of Engineering Science (SES), 2014-2016

Editorial Boards

- Contributing Editor, *International Journal of Non-Linear Mechanics*, 2022- current
- Editorial Board, *Strain*, 2015- current
- Editorial Board, *Experimental Mechanics*, 2014- current
- Editorial Board, *ASME Applied Mechanics Reviews*, 2017- 2022

Society Committees

- The Minerals, Metals & Materials Society: TMS – Public and Governmental Affairs Committee, 2021-current
- Fatigue and Fracture Division in the Society of Experimental Mechanics (SEM):
Chair 2012-2014; Vice-Chair 2010-2012; Secretary 2008-2010
- DIC Challenge Board, Society of Experimental Mechanics (SEM), 2012-2018

University Service

- Faculty Advisor to the American Association of University Women (AAUW), UCSB, 2017-current
- Faculty Mentor, Graduate Scholars Program (supports doctoral students from diverse and historically underrepresented backgrounds with academic, professional, and social support), UCSB, 2017-current
- UCSB Academic Senate:
 - Committee on Faculty Welfare (provides consultation, initiates studies, and makes recommendations on matters concerned with faculty welfare and academic freedom. The Council also provides oversight for Academic Senate awards for research, teaching, and mentorship), 2020-2024.
 - Graduate Mentor Award Committee, 2023-2024.
 - Committee on Academic Freedom, 2023-current.
 - The Committee on Courses and General Education (has final approval authority for the creation and modification of all undergraduate courses), 2018- 2021.

- Faculty Awards Committee (Makes recommendations regarding the Faculty Career Development Award, Regents Junior Faculty Fellowships, and Regents Humanities Award, 2020- 2021.
 - Faculty Research Grant Committee, 2020
- UCSB Search Committees:
 - Search Committee for COE Associate Director of Corporate Business Development, 2022.
 - University Search Committee for New Registrar, 2020.
- University of Michigan Search Committees:
 - College of Engineering Dean's Search Committee, 2015.
 - Advisory Committee, Electron Microbeam Analysis Laboratory, 2013-2016.

Department Service

- Vice Chair (Interim), Department of Mechanical Engineering (2021-2022)
- Graduate Chair (Interim), Department of Mechanical Engineering (2021-2022)
- Graduate Diversity Officer, Department of Mechanical Engineering (2021-2022)
- Graduate Admissions Committee Chair (2021-2022)
- Faculty Search Committee Member (2016-2017)
- Graduate Admissions Committee Member (2016-2017, 2017-2018, 2019-2020, 2021-2022, 2022-2023, 2023-2024)
- Mechanical Engineering Best PhD Thesis Award Committee (2022)
- Undergraduate Revamp Committee (2019-2021)
- Advisory Committee (2019-2022)
- Development Committee (2019-2021)
- Academic Programs Committee (2018-2019)
- Workload Committee (2021-2022)
- External Relations/Development Committee (2018-2019, 2019-2020, 2020-2021)
- Merits and Promotions Committee (2018-2019, 2020-2021, 2023-2024)
- University of Michigan Departmental Activities:
 - Mechanical Engineering Graduate Admissions Committee (2011-2012, 2012-2013), Mechanical Engineering Honors & Awards Committee (2013-2014, 2014-2015, 2015-2016), Mechanical Engineering Seminar Series Committee (2009-2010, 2010-2011 chair), Mechanical Engineering Junior Faculty Advising Luncheon Committee (2008-2009, 2009-2010 chair), Mechanical Engineering Strategic Planning Committee (2010)

Government Panels

- NSF Proposal Review Panel Member, 2008, 2010-2024 (all years)
- DOE Proposal Review Panel Member 2011, 2012, 2014, 2016, 2017, 2018, 2020
- DOE Graduate Student Research Fellowship Review Panel (DOE SCGSR), 2022
- U.S. National Committee on Theoretical and Applied Mechanics Fellowship Committee, 2021
- Los Alamos Program Review Panel, 2020

Reviewing Activity

- Reviewer for journals including Journal of Mechanics and Physics of Solids, International Journal of Fracture, International Journal of Fatigue, International Journal of Solids and Structures, Experimental Mechanics, Mechanics of Materials, ASME Journal of Applied Mechanics, International Journal of Plasticity, Journal of Applied Physics, Engineering Fracture Mechanics, Smart Structures and Materials, Continuum Mechanics and Thermodynamics, amongst others.

Conference Organization (Last 4 years)

- Track 12 (largest track) organizer for ASME IMECE 2024
- Co-Organizer for 100 person session at Caltech 2024
- Co-Organizer for 100 person session at Caltech 2019
- Co-Organizer for 80 person 3-day symposium at UCSB 2019
- Co-Organizer for 40 person NSF Mechanics of Materials Workshop in DC, 2019

GROUP MEMBERS

Current Research Scientists & Postdocs

- Neal Brodnik, 2019-present
Best Paper Award, SynS & ML, International Conference on Machine Learning (ICML 2023), 2023
Invited Perspective, *Journal Applied Mechanics*, 2023
Invited Perspective, *Journal Mechanics and Physics of Solids*, 2022

Current Students

- Andrew Christison, 2020- present
Cardiovascular Implant Device Conference 2023 Presentation & Travel Award, 2023
- Nikhil Tulshibagwale, 2021- present
NDSEG Graduate Fellowship, 2022 – present
Editor's Choice - Free Access Article, *IMMI*, 2023
Invited Perspective, *Journal Mechanics and Physics of Solids*, 2022
- Warren Zamudio, 2024-current

Current Undergraduate Students

- Maddie Dang (2023-current)
- Brianna Grissom (2023-current)
- Tim Schmuelling (2023-current)
- Ava Smith (2024-current)

Doctoral Students: Alumni

- Jayden Plumb, 2018- 2024
Co-Advisor: Prof. Stephen Wilson, UCSB
Argonne National Laboratory Advisor: Zahir Islam
U.S. Department of Energy (DOE) Office of Science Graduate Student Research (SCGSR) Award for “*High Resolution Characterization of Strain Gradients Using Dark-Field X-ray Microscopy and Machine Learning*” at Argonne National Laboratory, 2021
Current: Postdoc at Advanced Light Source
- Caelin Muir, 2019- present
NASA Space Technology Research Fellowship (NSTRF), 2019-2023
Presented to NASA Administration by NSTRF as an example of a successful fellowship, 2022
Editor's Choice - Free Access Article, *IMMI*, 2023
Invited Perspective, *Journal Applied Mechanics*, 2023
Invited Perspective, *Journal Mechanics and Physics of Solids*, 2022
NASA Advisor: Dr. Craig Smith

- Jeffrey Rossin, 2017- 2022
NASA Space Technology Research Fellowship, 2018-2022
Co-Advisor: Prof. Tresa Pollock, UCSB
NASA Advisor: Dr. Stephen Smith
Current: Relativity
- Bhavana Swaminathan, 2016-2021
NASA Space Technology Research Fellowship, 2017-2021
NASA Advisor: Dr. J. Doug Kiser
Current: Boston Consulting Group
- Michelle Harr, 2015-2020
NSF Graduate Fellowship, 2017-2019
Mechanical Engineering Departmental Merit Fellowship, University of Michigan
AFRL Advisor: Dr. Adam Pilchak
Current: Postdoctoral Scholar, Air Force Research Laboratory (AFRL)
- Marissa Linne, 2013-2019
2nd Place, British Society of Strain Measurement Young Stress Analyst Competition, 2018
Invited Paper & Cover Article, Experimental Mechanics, 2019
Invited Presentation, Gordon Research Seminar, 2019
Current: Postdoctoral Scholar, Lawrence Livermore National Lab (LLNL)
- William LePage, 2013-2018
1st Place, International Student Paper Competition, Society for Experimental Mechanics (SEM) Conference, 2018
Robert Caddell Memorial Materials and Manufacturing Award, University of Michigan, 2018
1st Place, British Society of Strain Measurement, Young Stress Analyst Competition, 2017
U-M Mechanical Engineering Department Nomination for College of Engineering Best Thesis Award, 2017
Best Poster Presentation, University of Michigan Materials Research Symposium, 2017
Honorary Mention, Richard and Eleanor Towner Session, College of Engineering Graduate Symposium, University of Michigan, 2017.
NDSEG Fellowship, 2014-2016
NSF Graduate Fellowship Honorable Mention, 2014
Co-Advisor: Prof. J. Wayne Jones, University of Michigan
Current: Assistant Professor, University of Tulsa
- Joyce Gong 2012-2017
Invited Paper, Shape Memory and Superelastic Technologies
Current: Technical Program Manager, Intel
- Jason Geathers, 2010-2016
Best in Show, TMS Student Poster Competition, 2015
1st Place, TMS Student Poster Competition, Structural Materials Division, 2015
1st Place, Society for Engineering Science (SES) Student Competition, 2014
1st Place, Society for Experimental Mechanics (SEM) Student Competition, 2014
2nd Place, U-M Engineering Graduate Student Symposium, Mechanics of Materials & Structures Division, 2013
Rackham Merit Fellowship, University of Michigan, 2010-2014
Scholar Power PhD Candidate Achievement Award, 2013
NSF Graduate Fellowship Honorable Mention, 2010
Co-Advisor: Prof. J. Wayne Jones, University of Michigan
Current: Senior Engineer, Exponent

- Michael Kimiecik, 2010-2015
Materials Science and Engineering Graduate Fellowship, 2010
Co-Advisor: Prof. J. Wayne Jones, University of Michigan
Current: Failure Analysis Engineer, Lyft
- Jared Tracy 2010-2014
Cover Article, Journal of Materials Science, 2015
Richard and Eleanor Towner Prize for Distinguished Academic Achievement, University of Michigan College of Engineering, 2013
Rackham Merit Fellowship, University of Michigan, 2009
Current: DuPont
- Adam Kammers 2009-2014
Physical Metallurgy Gordon Research Conference Poster Award, 2013
Robert Caddell Memorial Materials and Manufacturing Award, University of Michigan, 2013
Society for Experimental Mechanics (SEM), Student Competition - 3rd Place, 2012
Alexander Azarkhin Award for Outstanding Doctoral Research, University of Michigan, 2012
Rackham Non-Traditional Fellowship, University of Michigan, 2010
Current: Mechanical Engineering Manager, Omron Microscan
- Kyubum Kim 2008-2013
M. Hetényi Award, Society of Experimental Mechanics, 2013 (for Best Paper published in Experimental Mechanics in 2011).
Graduate Excellence in Materials Science (GEMS) Award Sapphire Ranking, MS&T 2011
Current: Program Manager, Optimal Engineering Inc.
- Benjamin Reedlunn, 2008-2011
Best Paper of the Year, International Journal of Solids and Structures, 2014.
Student best paper finalist at Smart Materials, Adaptive Structures and Intelligent Systems (SMASIS) conference (6 finalists out of 48 entries)
Co-Advisor: Prof. John Shaw, University of Michigan
Current: Principal Member of the Technical Staff, Sandia National Laboratories

Postdoctoral and Research Staff : Alumni

Zhe Chen 2014-2020

Current: Research Scientist, University of Michigan

Master's Students : Alumni

Alizée Cinquin, Ecole des Mines de Paris (Visiting Researcher, March-August 2023)

Anna Washabaugh (2016-2019)

Madeline Dippel (2017-2018)

Alan Githens (2012-2015)

Undergraduate Researchers at UCSB (2016-present)

- Juan Herrera, Cal Poly (*Summer 2023 FLAM Intern*)
- Andrew Furst, 2021-2023 (*Colorado School of Mines, Mechanical Engineering PhD program*)
- Kegan Woodhouse, 2022 (*UCSB, Mechanical Engineering MS program*)
- Abed Musaffar, 2022 (*UCSB, Mechanical Engineering PhD program*)
- Daniele Offidani, 2022 (*University of Michigan, Materials PhD program*)
- Kiran Lochun (*Summer 2022 FLAM Intern*)
- Aine McNulty, 2021 (*Lockheed*)
- Daniel Magnuson, 2021 (*Johns Hopkins University, Mechanical Engineering PhD program*)
- Nolan McCarthy, 2020 (*Carnegie Mellow, Materials Science MS Program*)

- Julia Combs, 2019 (*Boeing*)
- Casey Magid, 2018 (*Boeing*)

Undergraduate Researchers at University of Michigan (2009-2016)

Jeremy Cho (*faculty at Univ. Nevada Reno*), Gretchen Miller, Thomas Fick, Jackie Herriage, Vipul Chhajjer, Nathaniel Hinkle, Eric Champion (*Prolog*), Lyndsey Pohl (*Corning*), Paul Schrems (*Brio*), Patrick Hopps, Emily Nelson (*Lockheed Martin*), Allison Ryan, Greg Cass, Emmanuel Nyangweso (*NASA*), Josh DeBoer (*RedViking*), Sara Nitz (*Dow Chemical*), Steve Orloff (*Rockwell*), Adam Joyce (*eAxe*), Wei Jin Bong (*DSTA*), Michael Compagner (*Gentex*), Jason Krystek (*SpaceX*), Avery Samuel (*Materials PhD program, UCSB*), Jalil Alidoost (*M.E. PhD program, JHU*), Ryan Rodeman (*Pratt & Whitney*).

Collaborators and co-Editors During the Past Four Years

John Allison (UM), Amjad Almansour (NASA), Janice Barton (University of Bristol), Irene Beyerlein (UCSB), Tom Bieler (Michigan State), Ioannis Chasiotis (UIUC), Amy Clarke (Colorado School of Mines), Wayne Chen (Purdue), Christopher Cheng (Stanford), Martin Crimp (Michigan State), Harry Dankowicz (UIUC), Marc DeGraef (CMU), Tom Duerig (Confluent Medical), Christian Franck (Wisconsin), David Fullwood (BYU), Michael Groeber (Ohio State University), Kevin Hemker (JHU), Francois Hild (ENS Cachan), Johan Hoefnagels (Technical University Eindhoven), J. Wayne Jones (University of Michigan), Doug Kiser (NASA), William Lenthe (CMU), Patrick Leser (NASA), Jonathan Miller (AFRL), Adam Pilchak (AFRL), Tresa Pollock (UCSB), Michael Presby (NASA), Michael Sangid (Purdue), Kathy Sevener (University of Michigan), John Shaw (University of Michigan), Petr Sittner (Academy of Sciences Czech Republic), Craig Smith (NASA), Stephen Smith (NASA), Aaron Stebner (Colorado School of Mines), Ghatu Subhash (University of Florida), QingPing Sun (Hong Kong University of Science & Technology), Veera Sundararaghavan (University of Michigan), Anton Van der Ven (UCSB), Sven Vogel (Los Alamos), Alan Zehnder (Cornell)

Investigator's Graduate Advisors

Ph.D. Advisor: Kaushik Bhattacharya (Caltech), Guruswami Ravichandran (Caltech)

M.S. Advisor: Richard Murray (Caltech)