

## ADAM R. CARBERRY

Office Address: Fulton Schools of Engineering  
The Polytechnic School  
7171 E. Sonoran Arroyo Mall  
Peralta Hall, 330 G  
Arizona State University  
Mesa, AZ 85212-6414

Phone: 480-727-5122 (work)  
781-307-7464 (mobile)

Fax: 480-727-1549

Email: adam.carberry@asu.edu OR arcarberry@gmail.com

URL Address: <https://webapp4.asu.edu/directory/person/1646960>

ORCID: 0000-0003-0041-7060

### EDUCATION

Ph.D., Engineering Education, Tufts University (January 2005 – August 2010)

Dissertation: Characterization Analysis of Engineering Learning-through-Service Students by Gender and Academic Year

Advisors: Dr. Hee-Sun Lee – Education (Chair)  
Dr. Judah Schwartz - Education  
Dr. Chris Rogers – Mechanical Engineering  
Dr. Chris Swan – Civil & Environmental Engineering  
Dr. Matthew Ohland – Engineering Education (Purdue University)

M.S., Chemistry, Tufts University (September 2002 – December 2004)

Advisor: Dr. David Walt

B.S., Material Science Engineering (Minor: Chemistry), Alfred University (September 1998 – May 2002)

Thesis: Damage Initiation Mechanics in Woven Fiberglass Reinforced Epoxy Composites

Advisors: Dr. Rebecca DeRosa – Material Science & Engineering  
Dr. J. Stephen Mayes – Mechanical Engineering

## RELEVANT WORK EXPERIENCE

Arizona State University – Polytechnic Campus, Mesa, AZ

Graduate Program Chair – Engineering Education Systems and Design (January 2021 – present)

Associate Professor – Fulton Schools of Engineering, The Polytechnic School (August 2017 – present)

Assistant Professor – Fulton Schools of Engineering, The Polytechnic School (July 2014 – July 2017)

Assistant Professor – College of Technology & Innovation, Department of Engineering & Computing Systems (August 2011 – July 2014)

Postdoctoral Research Associate – Sponsor: Dr. Ann McKenna (September 2010 – July 2011)

Arizona State University – Tempe Campus, Tempe, AZ

Affiliate Faculty Member – Mary Lou Fulton Teachers College (December 2017 – present)

North Carolina State University

Visiting Associate Professor – College of Engineering, Department of Chemical and Biomolecular Engineering (Fall 2019)

Tufts University Center for Engineering Education and Outreach (CEEEO), Medford, MA

Research Assistant (May 2005 – August 2010)

Student Teacher Outreach Mentorship Program (STOMP) Manager (September 2008 – May 2010)

STOMP Fellow and Executive Board Member (September 2005 – May 2010)

LEGO Engineering.com Content Developer (September 2005 – May 2008)

LEGO Camp Counselor (May 2005 – September 2007)

Tufts University, Medford, MA – Chemistry Department

Research Assistant & Computer Technician (May 2003 – December 2004)

Teaching Assistant (September 2020 – May 2004)

Sikorsky Aircraft, Stratford, CT – Metallurgical Lab

Junior Computist Internship (Summers of 2000 – 2002)

Alfred University, Alfred, NY – Admissions

Student Interviewer (2000 – 2002)

## HONORS AND AWARDS

Fulbright Specialist – National Higher School of Mines of Rabat (École Nationale Supérieure des Mines) – Rabat, Morocco (Fall 2019)

Top 5% Teaching Award (2015 – 2016)

Barrett Summer Scholars Outstanding Service Award (2015 & 2016)

Frontiers in Education New Faculty Fellow Award (2012)

ASEE Educational Research and Methods Division Apprentice Faculty Award (2011)

Tufts University Presidential Award for Citizenship and Public Service (2010)

## SUMMARY OF PUBLICATIONS

### PEER-REVIEWED JOURNAL PUBLICATIONS WHILE AT ARIZONA STATE UNIVERSITY

1. Huerta, M. V., Carberry, A. R., Pipe, T., & McKenna, A. F. (2021). Inner engineering: Evaluating the utility of mindfulness training to cultivate intrapersonal and interpersonal competencies among first-year engineering students. *Journal of Engineering Education*, 110(3), 636-670. <https://doi.org/10.1002/jee.20407>
2. London, J., Carberry, A., Abhyankar, R., Ayela-Uwangue, A., Huang, W., Huerta, M., Lee, E., Cruz, S., Yasuhara, K., & Allendoerfer, C. (2021). [The Pioneers' stories as a tool for introducing graduate students to the engineering education research community](#). *Advances in Engineering Education*, 29(1), 1-22.
3. Dalal, M., Carberry, A., & Archambault, L. (2021). Developing a ways of thinking framework for engineering education research. *Studies in Engineering Education*, 1(2), 108-125. <https://doi.org/10.21061/see.38>  
\* Special Issue on Theories and Methods in Engineering Education
4. Miranda, C., Goñi, J., Berhane, B., & Carberry, A. (2020). Seven challenges in conceptualizing and assessing the entrepreneurial skills or mindset in engineering entrepreneurship education. *Education Sciences*, 10(11), 309. <https://doi.org/10.3390/educi10110309>  
\* Special Issue on Entrepreneurship Education
5. Major, J., Carberry, A., & Kirn, A. (2020). Revisiting a measure of engineering design self-efficacy. *International Journal of Engineering Education*, 36(2), 749-761.  
\* Special Issue associated with the Clive L. Dym Mudd Workshop XII: Design Education & Practice – “How Process Matters, Claremont, CA
6. London, J., Bekki, J., Brunhaver, S., Carberry, A., & McKenna, A. (2018). [A framework for entrepreneurial mindsets and behaviors in undergraduate engineering students](#). *Advances in Engineering Education*, 7(1), 1-12.  
\* Special Issue on Entrepreneurial Mindset.
7. Brunhaver, S., Bekki, J., Carberry, A., London, J., & McKenna, A. (2018). [Development of the engineering entrepreneurial mindset assessment \(ESEMA\)](#). *Advances in Engineering Education*, 7(1), 1-12.  
\* Special Issue on Entrepreneurial Mindset.

8. Lee, E., Carberry, A.R., Atwood, S.A., Diefes-Dux, H.A., & Siniawski, M.T. (2018). [Faculty perceptions before and after implementation of standards-based grading](#). *Australasian Journal of Engineering Education*, 23(2), 53-61.  
<https://doi.org/10.1080/22054952.2018.1544685>  
\* Special Issue associated with the Research in Engineering Education Symposium, Bogata, Columbia
9. Carberry, A.R., Gerber, E., & Martin, C.K. (2018). Measuring the innovation self-efficacy of engineers. *International Journal of Engineering Education*, 34(2B), 1-9.  
\* Special Issue associated with the Clive L. Dym Mudd Design Workshop X: Design and the Future of the Engineer of 2020, Claremont, CA
10. Csavina, K., Carberry, A., & Nethken, C. (2017). Understanding perceptions of reflection among engineering educators and students. *International Journal of Engineering Education*, 33(5), 1534-1542.  
\* Special Issue associated with the Capstone Design Conference, Columbus, OH
11. Bumblauskas, D., Carberry, A., & Sly, D. (2017). [Selling technical sales to engineering learners](#). *Advances in Engineering Education*, 6(1), 1-19.
12. Balta, N., Yerdelen-Damar, S., & Carberry, A.R. (2017). Vocational high school students' engineering epistemological beliefs. *International Journal of Engineering Education*, 33(1B), 420-429.  
\* Special Issue of Current Trends in K-12 Engineering Education
13. Carberry, A., Brunhaver, S., Csavina, K., & McKenna, A. (2016). Comparison of written versus verbal peer feedback for design projects. *International Journal of Engineering Education*, 32(2), 1458-1471.  
\* Special Issue associated with the Clive L. Dym Mudd Workshop IX: Design Thinking in Design Education, Claremont, CA
14. McKenna, A.F., Hynes, M.H., Johnson, A.M., & Carberry, A.R. (2015). [The use of engineering design scenarios to assess student knowledge of global, societal, economic, and environmental contexts](#). *European Journal of Engineering Education*, 1-15.  
<https://doi.org/10.1080/03043797.2015.1085836>
15. Carberry, A.R. & McKenna, A.F. (2014). [Exploring students conceptions of modeling and modeling uses in engineering design](#). *Journal of Engineering Education*, 103(1), 77-91.  
<https://doi.org/10.1002/jee.20033>
16. Danahy, E., Wang, E., Brockman, J., Carberry, A., Shapiro, B., & Rogers, C.B. (2014). [LEGO-based robotics in higher education: 15 years of student creativity](#). *International Journal of Advanced Robotic Systems*, 11(27), 1-15. <https://doi.org/10.5772/58249>
17. Carberry, A.R., Lee, H-S., & Swan, C.W. (2013). [Student perceptions of engineering service experiences as a source of learning technical and professional skills](#). *International Journal of Service Learning in Engineering*, 8(1), 1-17.

18. Carberry, A.R. & Ohland, M.W. (2012). [A review of learning-by-teaching for engineering educators](#). *Advances in Engineering Education: P-12 Education Special Issue*, 3(2), 1-17.
19. McKenna, A.F. & Carberry, A.R. (2012). [Characterizing the role of modeling in innovation](#). *International Journal of Engineering Education*, 28(2), 263-269.  
\* Special Issue associated with the Clive L. Dym Mudd Design Workshop VIII: Innovation and Entrepreneurship, Claremont, CA

#### PEER-REVIEWED JOURNAL PUBLICATIONS PRIOR TO ARIZONA STATE UNIVERSITY

1. Lemons, G., Carberry, A., Swan, C., & Jarvin L. (2011). [The effects of service-based learning on metacognitive strategies during an engineering design task](#). *International Journal for Service Learning in Engineering*, 6(2), 1-18.
2. Lemons, G., Carberry A., Swan, C., Jarvin, L., & Rogers, C. (2010). [The benefits of model building in teaching engineering design](#). *Design Studies*, 31, 288-309.  
<https://doi.org/10.1016/j.destud.2010.02.001>
3. Carberry, A.R., Lee, H-S., & Ohland, M.W. (2010). [Measuring engineering design self-efficacy](#). *Journal of Engineering Education*, 99(1), 71-79. <https://doi.org/10.1002/j.2168-9830.2010.tb01043.x>
4. Carberry, A.R. & Church, W.J. (2009). [HS-STOMP: High School Student Teacher Outreach Mentorship Program](#). *International Journal of Engineering Education*, 25(3) 461-467.  
\* Special Issue of Outreach to Prospective Engineering Students

#### EDITORIALS

1. Huang-Saad, A., Bodnar, C., & Carberry, A. (2020). [Editorial: Examining current practice in engineering entrepreneurship education](#). *Entrepreneurship Education and Pedagogy*, 3(1), 4-13. <https://doi.org/10.1177/2515127419890828>
2. Williams, B., Carberry, A., & Ramirez Cajiao, M.C. (2019). [Research in Engineering Education Special Issue Editorial](#). *European Journal of Engineering Education*, 44(6), 805-806. <https://doi.org/10.1080/03043797.2019.1681629>

#### BOOK CHAPTERS PUBLISHED

1. Carberry, A. & Brunhaver, S. (2019). Second-year engineering design: A model use-inspired design approach. In D. Schaefer, G. Coates, & C. Eckert (Eds.), [Design education today – Technical contexts, programs and best practices](#) (pp. 23-36). Springer.
2. Carberry, A. & Baker, D. (2017). Cultural impacts on engineering. In J. Dori, Z. Mevareach, & D. Baker (Eds.), [Cognition, metacognition and culture in STEM education](#) (pp. 217-240). Springer, New York, NY.

3. Carberry, A. (2014). Investigating the Role teacher and student engineering epistemological beliefs play in engineering education. In J. Heywood & A. Cheville (Eds.), Philosophical perspectives on engineering and technological literacy, I (pp. 58-69). Original Writing Ltd., Dublin, Ireland.

## CONFERENCE PROCEEDINGS

1. Zhao, Z., Carberry, A., Jordan, M., Larson, J., Savenye, W., Eustice, K., Godwin, A., Roehrig, G., Barr, C., Farnsworth, K., Argenti, C., O'Donnell, M., & Barnard, W. (2021). [NSF Engineering Research Centers unite: Developing and testing a suite of instruments to enhance overall education program evaluation](#). NSF Grantees' Poster Session – American Society for engineering Education Virtual Conference and Exposition.
2. Larson, J., Barnard, W., Carberry, A., & Karwat, D. (2021). [Student understanding and use of Engineering for One Planet concepts in project-based learning](#). Educational Research and Methods Division – American Society for engineering Education Virtual Conference and Exposition.
3. Bolton, C., Aaron, C., Miskioglu, E., Martin, K., & Carberry, A. (2021). [Practicing engineers' definition of their expertise: Emergent themes and frequency by gender identity and role change](#). Educational Research and Methods Division – American Society for engineering Education Virtual Conference and Exposition.
4. Miskioglu, E., Martin, K., Carberry, A., Bolton, C., & Aaron, C. (2021). [Is it rocket science or brain science? Developing an approach to measure engineering intuition](#). NSF Grantees' Poster Session – American Society for engineering Education Virtual Conference and Exposition.
5. Dalal, M. & Carberry, A. (2021). [Enabling factors and barriers for adopting engineering curricula in high schools: School, district, and state administrator perspectives](#). Pre-College Engineering Education Division – American Society for engineering Education Virtual Conference and Exposition.
6. Lee, E., Dalal, M., Miller, M., & Carberry, A. (2021). [Exploring the validity of the engineering design self-efficacy scale for secondary school students](#). Pre-College Engineering Education Division – American Society for engineering Education Virtual Conference and Exposition.
7. Ross, L., Dalal, M., & Carberry, A. (2021). [Program evaluation of a professional development program for high school counselors on the engineering design process](#). Pre-College Engineering Education Division – American Society for engineering Education Virtual Conference and Exposition.
8. Emiola-Owalabi, O., Ladeji-Osias, J. K., Dalal, M., & Carberry, A. (2021). [High school students' perspective of project-based learning in online learning](#). Pre-College Engineering Education Division – American Society for engineering Education virtual Conference and Exposition.

\* Nominated for best paper in the Pre-College Engineering Education Division

9. Dalal, M., Carberry, A., & Emiola-Owalabi, O. (2021). Understanding anchors associated with secondary students' engineering design experiences. Clive L. Dym Mudd Design Workshop XII: Designing Through Making. Claremont, CA.
10. Carberry, A., Dalal, M., Nagda, M., & McCarthy, B (2021). Expanding the STEM teacher pool: A history teacher's experience teaching a high school engineering course. Submitted to National Association for Research in Science Teaching (NARST) Virtual Conference.
11. Berhane, B., Dalal, M., Klein-Gardner, S., Carberry, A., Reid, K., Beauchamp, C., & Pines, D. (2021). [Understanding the 'us all' in Engineering 4 Us All through the experiences of high school teachers](#). Collaborative Network for Engineering and Computing Diversity (CoNECD) Virtual Conference.
12. Lee, E., Bekki, J., Carberry, A., & Kellam, N. (2021). [Conceptualization and situating of sense of belonging among international engineering doctoral students: In light of the previous literature](#). Collaborative Network for Engineering and Computing Diversity (CoNECD) Virtual Conference.
13. Dalal, M., Carberry, A., Warmington, D., & Maxwell, R. (2020). [A case study exploring transfer of pedagogical philosophy from music to engineering](#). ASEE/IEEE Frontiers in Education Virtual Conference.
14. Aaron, C., Miskioglu, E., Martin, K., Shannon, B. & Carberry, A. (2020). [Nurses, managers, and engineers – Oh my! Disciplinary perceptions of intuition and its role in the development of expertise](#). ASEE/IEEE Frontiers in Education Virtual Conference.
15. Zhao, Z., Carberry, A. R., Cook-Davis, A., Larson, J., Jordan, M., Barnard, W., O'Donnell, M., & Savenye, W. (2020). [Streamlining the process of evaluating educational and diversity impacts of Engineering Research Centers through a common assessment instrument](#). Educational Research & Methods Division – American Society for Engineering Education Virtual Conference & Exposition.
16. Miskioglu, E., Martin, K. & Carberry, A. (2020). [Work in Progress: Experts' perceptions of engineering intuition](#). Educational Research & Methods Division – American Society for Engineering Education Virtual Conference & Exposition.
17. Kouo, J., Dalal, M., Berhane, B., Emiola, O., Ladeji-Osias, J.K., Reid, K., Beauchamp, C., Carberry, A., Klein-Gardner, S., Miller, M., & O'Neal, B. (2020). [Initial investigation of effective teacher professional development among experienced and no-experienced engineering teachers](#). Pre-College Engineering Education Division – American Society for Engineering Education Virtual Conference & Exposition.
18. Rossi, N., Carberry, A., & Adamson, S. (2020). [Elements of good problem-solving tasks in thinking mathematics classrooms](#). Mathematics Division – American Society for Engineering Education Virtual Conference & Exposition.

19. Diefes-Dux, H. & Carberry, A. (2019). [Cases of student reflection within a course using standards-based grading](#). ASEE/IEEE Frontiers in Education Conference, Cincinnati, OH.
20. Zhao, Z., Carberry, A., Barnard, W., Cook-Davis, A., Jordan, M., Larson, J., & O'Donnell, M., Savenye, W. (2019). [Creating common tools to evaluate education and diversity impacts across three engineering research centers](#). ASEE/IEEE Frontiers in Education Conference, Cincinnati, OH.
21. Carberry, A.R., Atwood, S.A., Siniawski, M., & Diefes-Dux, H. (2019). [A comparison and classification of grading approaches used in engineering education](#). European Society for Engineering Education (SEFI) Annual Conference, Budapest, Hungary.
22. Diefes-Dux, H. and Carberry, A. (2019). [Student reflections on proficiency with learning objectives: Early semester actions and plans](#). Research in Engineering Education Symposium, Cape Town, South Africa.
23. Dalal, M., Carberry, A. & Archambault, L. (2019). [Work in progress: Exploring 'ways of thinking' of interdisciplinary collaborators](#). Educational Research & Methods Division – American Society for Engineering Education Annual Conference & Exposition, Tampa, FL.
24. Huerta, M.V., Aukes, D.M., Bekki, J.M., Brunhaver, S.R., Carberry, A.R., Holloway, J.L., Lichtenstein, G., & McKenna, A. (2019). [WIP: The process of conceptualizing and creating the Engineering Faculty Impact Collaborative to support faculty development and mentorship](#). Faculty Development Division – American Society for Engineering Education Annual Conference & Exposition, Tampa, FL.
25. Lee, E. & Carberry, A. (2019). [Work in Progress: Epic Fail – An attempt to observe mentoring relationships within short-term, lab-based Research Experiences for Undergraduates \(REU\) programs](#). Educational Research & Methods Division – American Society for Engineering Education Annual Conference & Exposition, Tampa, FL.
26. Larson, J.S., O'Donnell, M., Barnard, W.M., Cook-Davis, A., Carberry, A.R., & Adams, S.B. (2019). [Three ERCs and a national network node: Assessing engineering outcomes for middle school students across a joint outreach event](#). Pre-College Engineering Education Division – American Society for Engineering Education Annual Conference & Exposition, Tampa, FL.
27. Lee, E., Bekki, J., Carberry, A. & Kellam, N. (2019). [Understanding international engineering doctoral students; sense of belonging through their interactions with faculty and peers](#). Collaborative Network for Engineering and Computing Diversity (CoNECD) Conference, Washington D.C.
28. Zhao, Z. & Carberry, A. (2018). [Developing postdoctoral scholar and graduate student mentorship ability](#). ASEE/IEEE Frontiers in Education Conference, San Jose, CA.
29. Sheppard, M., Kellam, N. & Carberry, A. (2018). [Exploring pedagogical risk-taking in the](#)



[classroom](#). ASEE/IEEE Frontiers in Education Conference, San Jose, CA.

30. Carberry, A., Brunhaver, S. & London, J. (2018). [A way to win: Incentivizing engineering faculty to incorporate entrepreneurship in their courses](#). Entrepreneurship & Innovation Division – American Society for Engineering Education Annual Conference & Exposition, Salt Lake City, UT. <https://peer.asee.org/29744>
31. Carberry, A., Harding, T., Cunningham, P., Csavina, K., Ausman, M., & Lau, D. (2018). [Professional and personal use of reflection by engineering faculty, students and practitioners](#). Educational Research & Methods Division – American Society for Engineering Education Annual Conference & Exposition, Salt Lake City, UT. <https://peer.asee.org/29156>
32. McKenna, A., Bekki, J. Brunhaver, S., Carberry, A., Jordan, S., Kellam, N., Lande, M. & London, J. (2018). [Progress on the pathway to instigating a revolution of additive innovation](#). NSF Grantees' Poster Session – American Society for Engineering Education Annual Conference & Exposition, Salt Lake City, UT. <https://peer.asee.org/29856>
33. Dalal, M. & Carberry, A. (2018). [Work in progress: Changing 'ways of thinking' of interdisciplinary collaborators](#). Educational Research & Methods Division – American Society for Engineering Education Annual Conference & Exposition, Salt Lake City, UT. <https://peer.asee.org/31317>
34. Lee, E., Carberry, A., Atwood, S., Diefes-Dux, H., & Siniawski, M. (2017). [Faculty perceptions before and after implementation of standards-based grading](#). Research in Engineering Education Symposium, Bogotá, Columbia.
35. Csavina, K., Carberry, A., Cunningham, P., & Harding, T. (2017). [Work in progress: Examining the value of reflection in engineering practice and education](#). Design in Engineering Education Division – American Society for Engineering Education Annual Conference & Exposition, Columbus, OH. <https://peer.asee.org/29156>
36. Carberry, A., Siniawski, M., Atwood, S., & Diefes-Dux, H. (2016). [Best practices for using standards-based grading in engineering courses](#). New Engineering Educators Division – American Society for Engineering Education Annual Conference & Exposition, New Orleans, LA. 10.18260/p.26379
37. Csavina, K., Carberry, A., & Nethken, C. (2016). [Assessing student understanding of reflection in engineering education](#). Design in Engineering Education Division – American Society for Engineering Education Annual Conference & Exposition, New Orleans, LA. 10.18260/p.26306
38. McKenna, A., Kellam, N., Lande, M., Brunhaver, S., Jordan, S., Bekki, J., Carberry, A., & London, J. (2016). [Instigating a revolution of additive innovation: An educational ecosystem of making and risk taking](#). NSF Grantees Poster Session – American Society for Engineering Education Annual Conference & Exposition, New Orleans, LA. 10.18260/0.27315

39. Carberry, A., Kellam, N., Brunhaver, S., Sugar, T., & McKenna, A. (2015). [Excavating the impact of product archaeology](#). Research in Engineering Education Symposium, Dublin, Ireland.
40. Krause, S.J., Baker, D.R., Carberry, A.R., Alford, T.L., Ankeny, C.J., Brooks, B.J., Koretsky, M., Waters, C., Gibbons, B.J. (2015). [The impact of two-way formative feedback and web-enabled resources on student resource use and performance in materials courses](#). American Society for Engineering Education. Materials Division – Annual Conference & Exposition, Seattle, WA. 10.18260/p.24886
41. Krause, S.J., Baker, D.R., Carberry, A.R., Alford, T.L., Ankeny, C.J., Koretsky, M., Brooks, B.J., Waters, C., Gibbons, B.J. (2015). [Effect of implementation of JTF engagement and feedback pedagogy on faculty beliefs and practice and on student performance](#). NSF Grantees' Poster Session – American Society for Engineering Education Annual Conference & Exposition, Seattle, WA. 10.18260/p.23915
42. Turns, J.A., Sattler, B., Thomas, L.D., Atman, C.J., Bankhead, R.B., Carberry, A.R., Csavina, K.R., Cunningham, P.J., Faust, D.K., Harding, T.S., & Yasuhara, K. (2015). [Reflecting on reflection: How educators experience the opportunity to talk about supporting student reflection](#). Educational Research and Methods Division – American Society for Engineering Education Annual Conference & Exposition, Seattle, WA. 10.18260/p.24660
43. Whitesel, C. & Carberry, A. (2015). [Measuring community college student's self-efficacy toward circuit analysis](#). Two Year College Division – American Society for Engineering Education Annual Conference & Exposition, Seattle, WA. 10.18260/p.24474
44. Whitesel C. & Carberry, A. (2015). [Community college students' self-efficacy and conceptual knowledge of circuit analysis](#). Two Year College Division – American Society for Engineering Education Annual Conference & Exposition, Seattle, WA. 10.18260/p.23706
45. Waters, C., Krause, S., Chan, C. & Carberry, A. (2015) Cyber learning applications in core materials courses. American Society for Engineering Education Southeast Section Conference, Tuscaloosa, AL.
46. Carberry, A.R., Henderson, M., & Johnson, N.G. (2014). [Work-in-Progress: Using scaffolded alternating practice and application to teach a use-inspired engineering design process](#). ASEE/IEEE Frontiers in Education Conference, Madrid, Spain. <https://doi.org/10.1109/FIE.2014.7044291>
47. Krause, S., Maass, S., Chan, C., Carberry, A., Waters, C., & Koretsky, M. (2014). [Web-enabled formative feedback and learning resources for enhancing student attitude, achievement, and persistence](#). ASEE/IEEE Frontiers in Education Conference, Madrid. <https://doi.org/10.1109/FIE.2014.7044480>
48. Atwood, S., Siniawski, M., & Carberry, A. (2014). [Using standards-based grading in engineering project courses](#). Design in Engineering Education Division – American Society

for Engineering Education Annual Conference & Exposition, Indianapolis, IN.  
<https://peer.asee.org/23278>

49. Rathore, G., Coso, A., & Carberry, A. (2014). [Engaging ASEE student membership through the creation of a graduate student-inclusive ASEE conference program](#). Student Division – American Society for Engineering Education Annual Conference & Exposition, Indianapolis, IN. <https://peer.asee.org/20378>
50. Pawley, A.L., Carberry, A.R., Carnasciali, M.I., Daly, S.R., Gorlewicz, J.L., Herman, G.L., Hynes, M.M., Kellam, N.N., Jordan, S.S., Lande, M., Verleger, M.A., & Yang, D. (2014). [The PEER collaborative: Supporting engineering education research faculty with near-peer mentoring unconference workshops](#). Continuing Professional Development Division – American Society for Engineering Education Annual Conference & Exposition, Indianapolis, IN. <https://peer.asee.org/23170>
51. Krause, S.J., Baker, D.R., Carberry, A.R., Alford, T.L., Ankeny, C.J., Maass, S., Koretsky, M., Gibbons, B.J., Brooks, B.J., Gilbuena, D.M., Waters, C. & Stuart, J. (2014). [Characterizing and addressing student learning issues and misconceptions \(SLIM\) with muddiest point reflections and fast formative feedback](#). Materials Division – American Society for Engineering Education Annual Conference & Exposition, Indianapolis, IN. <https://peer.asee.org/20164>
52. Krause, S.J., Baker, D.R., Carberry, A.R., Alford, T.L., Ankeny, C.J., Maass, S., Koretsky, M., Gibbons, B.J., Brooks, B.J., Gilbuena, D.M., Waters, C., & Stuart, J. (2014). [JTF web-enabled faculty and student tools for more effective teaching and learning through frequent formative feedback](#). NSF Grantees’ Poster Session – American Society for Engineering Education Annual Conference & Exposition, Indianapolis, IN. <https://peer.asee.org/20724>
53. Lewis, K., Moore-Russo, D., Kremer, G., Tucker, C., Simpson, T., Zappe, S., McKenna, A., Johnson, A., Carberry, A., Chen, W., Gatchell, D., Shooter, S., Williams, C., Paretto, M., and McNair, L. (2014). [Assessment of product archaeology as a framework for contextualizing engineering design](#). NSF Grantees’ Poster Session – American Society for Engineering Education Annual Conference & Exposition, Indianapolis, IN. <https://peer.asee.org/20105>
54. Amresh, A., Carberry, A. R., & Femiani, J. (2013). [Evaluating the effectiveness of flipped classrooms for teaching CS1](#). ASEE/IEEE Frontiers in Education Conference, Oklahoma, City, OK. 733-735. <https://doi.org/10.1109/FIE.2013.6684923>
55. Carberry, A. R., Krause, S., Ankeny, C. J., & Waters, C (2013). [“Unmuddying” course content using muddiest point reflections](#). ASEE/IEEE Frontiers in Education Conference, Oklahoma, City, OK. 937-942. <https://doi.org/10.1109/FIE.2013.6684966>
56. Hynes, M., Carberry, A., Bekki, J., Lande, M., & McKenna, A. (2013). [What do engineers need to know: On the economics of product design, supply chain, and manufacturing](#). Research in Engineering Education Symposium, Kuala Lumpur, Malaysia.

57. Carberry, A., Hynes, M. & Danahy, E. (2013). [Using digital workbooks to collect design process data](https://peer.asee.org/22695). Design in Engineering Education Division – American Society for Engineering Education Annual Conference & Exposition, Atlanta, GA. <https://peer.asee.org/22695>
58. Kolar, H., Carberry, A., & Amresh, A. (2013). [Measuring computing self-efficacy](https://peer.asee.org/22274). Educational Research & Methods Division – American Society for Engineering Education Annual Conference & Exposition, Atlanta, GA. <https://peer.asee.org/22274>
59. Sly, D., Bumblauskas, D., & Carberry, A. (2013). [Evaluation of perceptual changes in an engineering sales program](https://peer.asee.org/19567). Industrial Engineering Division – American Society for Engineering Education Annual Conference & Exposition, Atlanta, GA. <https://peer.asee.org/19567>
60. Krause, S., Carberry, A., Waters, C., Stuart, J., Weeks, P., & Baker, D. (2013). [Muddiest point formative feedback with YouTube, Blackboard, Class Warm-ups and Word Clouds](https://peer.asee.org/22301). Materials Division – American Society for Engineering Education Annual Conference & Exposition, Atlanta, GA. <https://peer.asee.org/22301>
61. Krause, S., Carberry, A., Koretsky, M., Brooks, B., Gilburena, D., Waters, C., & Stuart, J. (2013). [Just-in-Time-Teaching with Interactive Frequent Formative Feedback \(JiTTIFFF\) for cyber learning in core materials courses](https://peer.asee.org/19851). NSF Grantees' Poster Session – American Society for Engineering Education Annual Conference & Exposition, Atlanta, GA. <https://peer.asee.org/19851>
62. Lewis, K., Moore-Russo, D., Kremer, G., Tucker, C., Simpson, T., Zappe, S., McKenna, A., Carberry, A., Chen, W., Gatchell, D., Shooter, S., Williams, C., Paretto, M., and McNair, L. (2013). [The development of product archaeology as a platform for contextualizing engineering design](https://peer.asee.org/22571). NSF Grantees' Poster Session – American Society for Engineering Education Annual Conference & Exposition, Atlanta, GA. <https://peer.asee.org/22571>
63. Siniawski, M.T., Carberry, A.R., & Noorani, R.I. (2013). [A project-based approach for a design and manufacturing laboratory course](#) (pg. 55-63). American Society for Engineering Education Pacific Southwest Section Conference, Riverside, CA.
64. Siniawski, M.T., Carberry, A.R., & Ula, N. (2013). [Work in Progress: Stepping back and letting students take the lead – Student-led projects for a first-year introduction to engineering course](#) (pg. 53-54). American Society for Engineering Education Pacific Southwest Section Conference, Riverside, CA.
65. Carberry, A.R. & Amresh, A. (2012). [Work in Progress – Teaching game design and robotics together: A natural marriage of computing and engineering design in a first year engineering course](https://doi.org/10.1109/FIE.2012.6462478). ASEE/IEEE Frontiers in Education Conference, Seattle, WA. F1F, 1-2. <https://doi.org/10.1109/FIE.2012.6462478>
66. Carberry, A.R., Siniawski, M., & Dionisio, J. (2012). [Standards-based grading: Preliminary studies to quantify changes in student affective and cognitive behaviors](#). ASEE/IEEE

Frontiers in Education Conference, Seattle, WA. F3F, 1-5.

<https://doi.org/10.1109/FIE.2012.6462211>

\* Nominated for Ben Dasher Award for Best Conference Paper

67. Gerber, E., Martin, C.K., Carberry, A.R., Kramer, E., & Braunstein, J. (2012). [Work in Progress – Developing an Innovation Self-Efficacy \(ISE\) survey](#). ASEE/IEEE Frontiers in Education Conference, Seattle, WA. T2E, 1-3. <https://doi.org/10.1109/FIE.2012.6462435>
68. Sattler, B., Carberry, A.R., & Thomas, L. (2012). [Peer Mentoring: Linking the value of a reflective activity to graduate student development](#). ASEE/IEEE Frontiers in Education Conference, Seattle, WA. T1G, 1-6. <https://doi.org/10.1109/FIE.2012.6462332>
69. Carberry, A., McKenna, A., & Dalrymple, O. (2012). [Eliciting students' interpretations of engineering representations](#). Multidisciplinary Engineering Division – American Society for Engineering Education Annual Conference & Exposition, San Antonio, TX. <https://peer.asee.org/21271>
70. Sattler, B., Carberry, A., & Thomas, L. (2012). [Graduate student peer mentoring: A means for creating an engineering education research community](#). Graduate Studies Division – American Society for Engineering Education Annual Conference & Exposition, San Antonio, TX. <https://peer.asee.org/21434>
71. Siniawski, M., Carberry, A., & Dionisio, J. (2012). [Standards-based grading: An alternative to score-based assessment](#). American Society for Engineering Education Pacific Southwest Section Conference, San Luis Obispo, CA.
72. Carberry A.R. & McKenna, A.F. (2011). [Work in Progress – Analyzing engineering student conceptions of modeling in design](#). ASEE/IEEE Frontiers in Education Conference, Rapid City, SD. S4F 1-2. <https://doi.org/10.1109/FIE.2011.6142760>
73. Thomas, L.D., Sattler, B., & Carberry, A.R. (2011). [Work in Progress – Developing a graduate consortium in engineering education](#). ASEE/IEEE Frontiers in Education Conference, Rapid City, SD. T2D 1-3. <https://doi.org/10.1109/FIE.2011.6143022>
74. Heywood, J., Carberry, A., & Grimson, W. (2011). [A philosophy of engineering education: Selected annotated bibliography](#). Produced for the Exploring the Philosophies of Engineering and Engineering Education Workshop. ASEE/IEEE Frontiers in Education Conference, Rapid City, SD. PEEE, 1-26. <https://doi.org/10.1109/FIE.2011.6143134>
75. Carberry, A. & McKenna, A. (2011). [Engineering students' conceptions of model uses in design](#). Paper presented at the Research in Engineering Education Symposium, Madrid, Spain.
76. Carberry, A.R., Bumblauskas, D.P., Coso, A.E., & Torres-Ayala, A.T. (2011). [Student satisfaction with ASEE activities and its impact on ASEE Student Membership](#). Graduate Studies Division – American Society for Engineering Education Annual Conference & Exposition, Vancouver, BC, Canada. <https://peer.asee.org/18723>

77. Carberry, A.R., McKenna, A.F., Linsenmeier, R.A., & Cole, J. (2011). [Exploring engineering students' conceptions of modeling](#). Educational Research & Methods Division – American Society for Engineering Education Annual Conference & Exposition, Vancouver, BC, Canada. <https://peer.asee.org/17969>
78. Carberry, A.R. & Swan, C.W. (2011). [Developing an instrument to measure the impact of service on technical and professional learning outcomes](#). Educational Research & Methods – American Society for Engineering Education Annual Conference & Exposition, Vancouver, BC, Canada. <https://peer.asee.org/17735>
79. Lemons, G., Carberry, A., & Swan, C. (2011). [Cognitive styles and design strategies of engineering students during a hands-on model-building design task](#). American Society for Engineering Education Middle Atlantic Section Spring Conference, Farmingdale, NY.  
\* Best Section Paper Award
80. Carberry, A.R. (2010). [Work in progress – Assessing engineering service students' characteristics](#). ASEE/IEEE Frontiers in Education Conference, Washington, DC. T2D 1-3. <https://doi.org/10.1109/FIE.2010.5673208>
81. Carberry, A., Swan, C., & Ohland, M. (2010). [A pilot validation study of the epistemological beliefs assessment for engineering \(EBAE\): First-year engineering student beliefs](#). Educational Research & Methods Division – American Society for Engineering Education Annual Conference & Exposition, Louisville, KY. <https://peer.asee.org/15693>
82. Head, E. & Carberry, A. (2010). [What can teachers learn from engineering experts? Using a three-phase model to improve K-12 teacher's knowledge of engineering and technology](#). K-12 & Pre-College Engineering Division – American Society for Engineering Education Annual Conference & Exposition, Louisville, KY. <https://peer.asee.org/15768>
83. Lemons, G., Carberry, A., Swan, C., Rogers, C., & Jarvin, L. (2010). [The importance of problem interpretation for engineering students](#). Design in Engineering Education Division – American Society for Engineering Education Annual Conference & Exposition, Louisville, KY. <https://peer.asee.org/16000>  
\* Nominated for best paper in the Design in Engineering Education Division
84. Carberry, A., Lemons, G., Swan, C., Jarvin, L., & Rogers, C. (2009). [Investigating engineering design through model-building](#). Paper presented at the Research in Engineering Education Symposium, Queensland, Australia.
85. Lemons, G., Carberry, A., Swan, C., Jarvin, L., & Rogers, C. (2009). [Using a hands-on design task to compare the design process of service learning and non-service learning engineering students](#). Paper presented at the Research in Engineering Education Symposium, Queensland, Australia.
86. Carberry, A., Ohland, M., & Lee, H. (2009). [Developing an instrument to measure engineering design self-efficacy](#). Educational Research & Methods division – American



Society for Engineering Education Annual Conference & Exposition, Austin, TX.  
<https://peer.asee.org/15693>

\* Nominated for best paper in the Educational Research Methods Division

87. Carberry, A., Portsmore, M., & Rogers, C. (2007). [The effects of STOMP on student's understandings of and attitudes toward the engineering design process](#). Educational Research & Methods Division – American Society for Engineering Education Annual Conference & Exposition, Honolulu, HI. <https://peer.asee.org/2115>
88. Carberry, A., & Hynes, M. (2007). [Underwater LEGO Robotics: Testing, evaluation, and redesign](#). K-12 & Pre-College Engineering Division – American Society for Engineering Education Annual Conference & Exposition, Honolulu, HI. <https://peer.asee.org/2588>
89. Bers, M., Rogers, C., Beals, L., Portsmore, M., Staszowski, K., Cejka, E., Carberry, A., Gravel, B., Hynes, M., Anderson, J., & Barnett, M. (2006). Innovative Session: Early childhood robotics for learning. International Conference on the Learning Sciences. Bloomington, IN.

#### CONFERENCE PAPERS WITHOUT PROCEEDINGS

1. Dalal, M., Archambault, L. & Carberry, A. (2019). Engineering education collaborations: Exploring ‘ways of thinking.’ Annual Meeting of the American Education Research Association, Toronto, Ontario, Canada.
2. Vaishnav, S. & Carberry, A. (2017). Student perspectives on standards-based grading used in engineering project-based courses. American Educational Research Association Annual Conference, San Antonio, TX.
3. McKenna, A.F., Kellam, N., Lande, M., Brunhaver, S., Jordan, S., Carberry, A., Bekki, J. & London, J. (2016). Capturing the ecosystem and culture to support risk-taking and additive innovation: Laying the groundwork. AAAS Envisioning the Future of Undergraduate STEM Education (EnFUSE): Research and Practice Symposium, Washington, DC.
4. Kolar, H., Carberry, A., & Amresh, A. (2013). Assessing student computing self-efficacy: A pilot study. Annual Meeting of the American Educational Research Association, San Francisco, CA.
5. Tatistcheff, R., Church, W., & Carberry, A. (2008). Students Teaching Teachers: Rethinking Professional Development for Technology. Paper presented at the Annual Meeting of the American Educational Research Association, New York, NY.

#### OTHER PUBLICATIONS

1. Carberry, A., Klassner, F., Schafer, B., and Varnado, T. (2014). LEGO® product research: A literature review. White Paper commissioned by LEGO Education.

2. Hynes, M., Portsmore, M., Dare, E., Milto, E., Rogers, C., Hammer, D., & Carberry, A. (2011). [Infusing engineering design into high school STEM courses](#). White Paper for the National Center for Engineering and Technology Education (NCETE).
3. Portsmore, M., Carberry, A., & Hynes, M. (November 15, 2010). [Concept and Skill Progression for Engineering Design](#). Massachusetts Department of Elementary and Secondary Education – Technology/Engineering Concept and Skill Progressions.

## **DISSERTATION & QUALIFYING PAPERS**

Carberry, A. (2009). Measuring Engineering Design Self-Efficacy. Unpublished Qualifying Paper, Tufts University.

Carberry, A. (2008). Learning-by-teaching as a pedagogical approach and its implications on engineering education. Unpublished Qualifying Paper, Tufts University.

Carberry, A. (2010). Characterizing learning-through service students in engineering by gender and academic year. ProQuest LLC, Tufts University.

## **SUMMARY OF RESEARCH SUPPORT**

### **TOTAL APPROVED EXTERNAL FUNDING WHILE AT ARIZONA STATE UNIVERSITY**

1. PI – “Collaborative Research: Leveraging the Collective Strengths of e4usa and FIRST for Greater Impact on the Future Engineering Workforce (e4usa+FIRST),” Medha Dalal - ASU, Steve Efe and Petronella James-Okeke – Morgan State University, National Science Foundation, EEC-2113312, \$748,705; \$487,834 (100% recognition). Funded 4/21 – 6/23.
2. PI – “Design and Development: NSF Engineering Research Centers Unite: Developing and Testing a Suite of Instruments to Enhance Overall Education Program Evaluation,” Michelle Jordan, Jean Larson, and Wilhelmina Savenye, National Science Foundation’s Research in the Formation of Engineers program, EEC-2023275, \$855,971 (32% recognition). Funded 8/20 – 7/23.
3. Co-PI – “Learning Environmentally Responsible Engineering through a Project-based Curricular Spine,” Darshan Karwat, Ira Bennet, and Philip White, The Lemelson Foundation’s Environmentally Responsible Engineering (ERE) Pilot Program, \$29,999 (40% recognition). Funded 7/20 – 6/22.
4. Co-PI – “RAPID: Assessing the Reactionary Response of High School Engineering Teachers to COVID-19,” Diana Bairaktarova (formerly Kenneth Reid) – Virginia Tech, National Science Foundation’s Grants for Rapid Response Research – COVID-19 Research, EEC-2033445, \$182,278; \$24,768 (100% recognition). Funded 6/20 – 3/21.
5. ASU Education Lead – “Nanosystems Engineering Research Center for Off-Grid Nanotechnology Enabled Water Treatment (NEWI),” Pedro Alvarez\*, Naomi Halas, and Qilin Li – Rice University; Paul Westerhoff – ASU; Jorge Gardea-Torresdey – University of



Texas at El Paso; and Menachem Elimelech – Yale University, National Science Foundation’s Engineering Research Centers (ERC), EEC-1449500, \$3,222,904 (yrs. 1-5) & \$3,592,624 (yrs. 6-10) (8% recognition). Funded 8/15 – 7/25.

Senior Personnel – “ASU ERC Consortium – Supplemental Proposal: Evaluation of Educational Programs of a Tri-ERC Consortium,” Edward Kavazanjian, Michelle Jordan, and Wilhelmina Savenye, \$144,876 (4% recognition). Funded 9/18 – 8/19.

6. Co-PI – “Collaborative Research: Research Initiation: Is it Rocket Science or Brain Science? Developing an Approach to Measuring Engineering Intuition,” Elif Miskioglu – Bucknell University; Kaela Martin – Embry-Riddle Aeronautical University – Prescott. National Science Foundation’s Research Initiation in Engineering Formation program, EEC-1849430, \$199,976; \$64,427 (100% recognition). Funded 10/19 – 9/21.
7. Co-PI – “Engineering for US All – e4usa: A National Pilot High School Engineering Course and Database,” Darryll Pines – University of Maryland, Craig Scott (formerly J. Kemi Ladeji-Osias) – Morgan State University, Stacy Klein-Gardner – Vanderbilt University, and Kenneth Reid – Virginia Tech, National Science Foundation, EEC-1849430, \$4,122,192; \$565,540 (60% recognition). Funded 10/18 – 9/21.
8. Co-PI – “Mentoring Engineering Faculty to Impact (EFIC),” Ann McKenna, Jennifer Bekki, Samantha Brunhaver, James Collofello, and Marco Saraniti, Kern Family Foundation (Planning Phase – expected 9 months; \$206,714 and Launch & Implementation Phase – expected 2 years; \$3,000,000) (5% recognition). Funded 5/18 – 12/23.
9. Co-PI – “Transforming Engineering Education through Student and Faculty Mindset Development: Establishing a National Engineering Faculty Training Collaborative and Model EM University,” Ann McKenna, James Collofello, Scott Shrake, Brent Sebold, Tirupalavanam Ganesh, Jennifer Bekki, Samantha Brunhaver, and Jeremi London, Kern Family Foundation. \$2,860,039 (5% recognition). Funded 1/16 – 12/17.
10. PI – “Making Grades Meaningful – Standards-based Grading for Engineering Project Courses,” Matthew Siniawski – Loyola Marymount University; Sara Atwood – Elizabethtown College; and Heidi Diefes-Dux – Purdue University, National Science Foundation’s Improving Undergraduate STEM Education (IUSE): Education and Human Resources (EHR) program, DUE-1503794, \$248,893; \$50,478 sub-awards to other institutions (100% recognition). Funded 4/15 – 3/17.
11. Senior Personnel – “Instigating a Revolution of Additive Innovation: An Educational Ecosystem of Making and Risk Taking,” Ann McKenna\*, Nadia Kellam, Micah Lande, Shawn Jordan, Jennifer Bekki, and Jeremi London, National Science Foundation’s Improving Undergraduate STEM Education (IUSE)/Professional Formation of Engineers (PFE): Revolutionizing Engineering Departments (RED) program, EEC-1519339, \$1,993,593 (9% recognition). Funded 7/15 – 6/20.

12. PI – “Enhancing a Project-based Curriculum Spine through Reflective Activities,” Kristine Csavina, Leona M. and Harry B. Helmsley Charitable Trust c/o University of Washington. \$187,940 (50% Year 1 recognition; 100% Year 2 recognition). Funded 8/14 – 7/16.
13. Co-PI – “Collaborative Research: Assessment of Product Archaeology as a Platform for Contextualizing Engineering Design,” Kemper Lewis\* – University of Buffalo; Ann McKenna – ASU; Timothy Simpson, Sarah Zappe, Conrad Tucker, and Gul Kremer – Pennsylvania State University; Christopher Williams, Marie Paretti, and Lisa McNair – Virginia Tech; Deborah Moore-Russo, Wei Chen, and David Gatchell – Northwestern University; and Steven Shooter – Bucknell University, National Science Foundation’s Transforming Undergraduate Education in Science, Technology, Engineering, and Mathematics (TUES) Program (Type II) – DUE-1225836, \$246,774 (25% recognition). Funded 9/12 – 8/14.
14. Co-PI – “Collaborative Research: Just-in-Time Teaching with Interactive Frequent Formative Feedback (JiTTIFFF) for Cyber Learning in Core Materials Courses,” Stephen Krause\*, Terry Alford, Dale Baker, Candace Chan, and Eugene Judson – ASU; Milo Koretsky and Brady Gibbons – Oregon State University; Cindy Waters – North Carolina A&T; and Joe Stuart – Oregon Institute of Technology, National Science Foundation’s Transforming Undergraduate Education in Science, Technology, Engineering, and Mathematics (TUES) program (Type II) – DUE-1226325, \$425,132 (12% recognition). Funded 9/12 – 8/15.

#### **TOTAL APPROVED INTERNAL FUNDING WHILE AT ARIZONA STATE UNIVERSITY**

1. Co-PI – “Evaluating the efficacy of an engineering education professional development for high school guidance counselors,” Lydia Ross and Medha Dalal, Arizona State University Internal Mary Lou Fulton Teachers College Grants Program, \$13,235. Funded 7/20 – 6/21.
2. Co-PI – “Embedding entrepreneurial mindset into a use-inspired design course,” Samantha Brunhaver, KEEN Professorship Mini-Grant, Arizona State University Ira A. Fulton Schools of Engineering, \$11,392. Funded 8/17 – 12/17.
3. PI – “Measuring computing self-efficacy, anxiety, and engagement,” Scholarship Support and Enhancement Grant, Arizona State University College of Technology and Innovation, \$7,000. Funded 10/11 – 6/12.

#### **EXPERIENCE ON EXTERNALLY FUNDED PROJECTS PRIOR TO ARIZONA STATE UNIVERSITY**

1. Post-Doctoral Research Associate – “Exploring the role of computational adaptive expertise in design and innovation,” Ann McKenna\*, Matthew Glucksberg, Robert Linsenmeier, and Uri Wilensky – Northwestern University, National Science Foundation’s Innovations in Engineering Education, Curriculum, and Infrastructure (IEECI) Program – EEC-1110453 (formerly EEC-00648316), \$940,667. Funded 8/06 – 8/11. Supplement \$93,586. Funded 8/11 – 5/12.

2. Graduate Research Associate – “The role of service-learning: Improving engineering education; attracting women into engineering,” Christopher Swan\*, Linda Jarvin, and Chris Rogers – Tufts University, National Science Foundation’s Innovations in Engineering Education, Curriculum, and Infrastructure (IEECI) Program – EEC-0835981, \$541,552. Funded: 9/08 – 9/12.

## **INVITED PRESENTATIONS**

### Domestic

1. “Engineering Course Grades  $\neq$  Engineering Learning.” Stanford University American Society for Engineering Education Student Chapter Autumn Seminar Series – Teaching to Engage the Multiperspective Classroom (October 5, 2020)
2. “Understanding the Academic Job Interview Process.” Arizona State University, Virtual Event sponsored by the Postdoctoral and Early Career Scientists Network and the ASU Postdoctoral Affairs Office (September 30, 2020)
3. “Changing Academic Culture from Selecting to Developing Talent.” Florida International University, Miami, FL (March 11, 2020)
4. “Ins and Outs of Different Survey Methods.” Queen Creek City Council Meeting, Queen Creek, AZ (May 1, 2019)
5. “Faculty Never Graduate – Entrepreneurial Initiatives Supporting Faculty.” Rowan University, Glassboro, NJ (April 4, 2019)
6. “Introduction to Engineering – Online.” Engineering 4 Us All (E4USA) Engineering Curriculum Workshop, University of Maryland, College Park, MD (December 11, 2018)
7. “Engineering Faculty Impact Collaborative (EFIC).” Summit on Transforming the Culture of Faculty Service/Engagement, Lehigh University, Bethlehem, PA (November 7, 2018)
8. “Mentorship: What’s good for the mentee is good for the mentor.” Purdue University, West Lafayette, IN (September 27, 2018)
9. “Making Grades Meaningful.” Arizona State University EESD Seminar Series (October 19, 2016)
10. “Reflection-on-action, Reflection-in-action, Reflection-then-action.” California Polytechnic University, San Luis Obispo, CA (March 11, 2016, Co-Presenter: Kristine Csavina)
11. “Learning modeling through the teaching process.” Olin College, Needham, MA (April 22, 2014)
12. “Student conceptions of modeling and modeling uses in engineering design.” Tufts University, Somerville, MA. (March 10, 2014)

13. “Developing an Instrument: Measuring Engineering Design Self-Efficacy.” Arizona State University, Tempe, AZ (September 12, 2011)
14. “Developing student engineering design expertise: Lessons learned from modeling tasks and insights into student self-conceptions.” Arizona State University, Mesa, AZ (February 16, 2011)
15. “Self-efficacy toward engineering design.” Better Learning Technologies Conference, Harvard University (co-hosted by Dr. Eric Mazur and Dr. Chris Rogers), Cambridge, MA. (June 13, 2008)
16. “Engineering Education and the Center for Engineering Educational Outreach at Tufts University.” Virginia Tech, Blacksburg, VA. (June 7, 2007)
17. “Engineering Education and the Center for Engineering Educational Outreach at Tufts University.” Clemson University, Clemson, SC. (June 11, 2007)

#### International

1. “Effective Mixed Methods,” Regional Conference on Engineering Education and Research in Higher education (RCEE & RHED), Virtual Event sponsored by the Centre for Engineering Education, Society of Engineering Education Malaysia (SEEM) and IEEE Malaysia (September 30, 2020)
2. “Using Assessment to Develop, rather than Select Talent,” Il Simposio Buenas Prácticas de “Assessment” en Ingeniería, Universidad del Norte, Barranquilla, Colombia (August 15, 2019).
3. “Implementing engineering education in schools: Why, how, and to what benefit?” Plenary Speaker, Russian LEGO Education Engineering Conference, Ekaterinburg, Russia (February 26, 2015)
4. “Engineering education: K-12 and beyond.” K-12 Engineering Education Virtual Day of Community Engineering Education, University Corporation for the Development of Internet (CUDI)-Mexico (Mexican NREN-National Research and Education Network), Mexico. (August 31, 2012)

#### **NON-CONFERENCE PROCEEDING PRESENTATIONS**

1. Ross, L., Dalal, M., & Carberry, A. (February 11, 2021). Expanding access in engineering: The efficacy of a professional development program for high school guidance counselors. AAAS Virtual Annual Meeting.
2. Lee, E., Bekki, J., Carberry, A., & Kellam, N. (September 16-17, 2020). Re-thinking sense of belonging in engineering doctoral education: Considering diversity in students’ citizenship. Korean Society for Engineering Education Virtual Conference.

\* Selected for best presentation award.

3. Lee, E., Carberry, A., Diefes-Dux, H., Atwood, S., & Siniawski, M. (September 19-20, 2019). Faculty Perception Before, During, and After Implementation of Standards-based Grading. Korean Society for Engineering Education Conference, Jeju Korea.

\* Selected for best presentation award.

4. Gerber, E. & Carberry, A. (March 20, 2015). "Research-based program Assessment: Measuring innovation self-efficacy." VentureWell OPEN Conference. Washington, D.C.

## POSTER SESSIONS

1. Shooter, S., Kim, C., Tranquillo, J., Lewis, K., Simpson, T., McKenna, A., Moore-Russo, D., Kremer, G., Tucker, C., Zappe, S., Carberry, A., Chen, W., Gatchell, D., Paretto, M., McNair, L. & Williams, C. (2014). Product Archaeology – Integrating Global Societal Environmental and Economic (GSEE) Considerations in Design, NCIIA OPEN Conference, San Jose, CA.
2. McKenna, A., Carberry, A., Cole, J., Glucksburg, M., Linsenmeier, R., Molina, E., & Wilensky, U. (2011). Exploring the role of computational adaptive expertise (CADEX) in design and innovation. Poster presented at the National Science Foundation Engineering Education Awardees Conference, Arlington, VA.
3. McKenna, A., Carberry, A., Cole, J., Glucksburg, M., Linsenmeier, R., Molina, E., & Wilensky, U. (2011). Exploring the role of computational adaptive expertise (CADEX) in design and innovation. Poster presented at the National Science Foundation Engineering Education Awardees Conference, Reston, VA.
4. Swan, C., Jarvin, L., Rogers, C., Oakes, W., Faux, R., Lemons, G., Carberry, A., & McCormick M. (2010). The role of service-learning: Improving engineering education; Attracting women into engineering. Poster presented at the National Science Foundation Engineering Education Awardees Conference, Reston, VA.

## MEDIA AND SOCIAL MEDIA

1. Learning Futures Podcast: [Creating an engineering identity](#) (April 6, 2021)
2. ASU News: [Revealing the world of engineering to young minds](#) (January 13, 2021)
3. Faculti Research Profile: [Classification of grading approaches](#) (November 27, 2020)
4. ASU News: [Environmental consciousness guides new education endeavor](#) (October 13, 2020)
5. The Dutch and White Show: [Attention Teachers! The right way to teach w/Dr. Adam Carberry](#) (July 2019)
6. Jewish Arizona News: [Fellowship allows Arizona professors to learn from Israeli peers](#) (December 5, 2018)
7. Engineering Unleashed Card: ([Use-Inspired Design Project I](#) October 8, 2018)
8. Engineering Unleashed Card: [Level Up: Use-Inspired Design I \(EGR 201\)-EM@ASU Case Study](#) (September 13, 2018)

9. ASU Full Circle: [Engineering students among top performers at NASA's Human Exploration Rover Challenge](#) (May 16, 2016)
10. ASU In the Loop: [New grading method makes learning more meaningful](#) (March 22, 2016)
11. Prism Magazine: [Made to measure](#) (February 2016)
12. ASU News: [ASU part of group that wins coveted engineering research center](#) (August 10, 2015)
13. ASU Full circle: [Rice, ASU, Yale, UTEP win coveted engineering research center](#) (August 10, 2015)
14. ASU News: [ASU among 12 institutions teaming up to promote reflection in learning](#) (November 12, 2014)
15. ASU News: [ASU engineering students develop exhibits for Arizona Science Center, Mesa Arts Center](#) (January 8, 2014)

## SUMMARY OF TEACHING ACTIVITIES

### COURSES TAUGHT AT ARIZONA STATE UNIVERSITY

ASU 101: The ASU Experience – Instructor

Fall 2017 – 1 section (Co-Instructor: Amanda James, UGTA: Alia Gilbert); 19 students

EGR 102: Foundations of Engineering Design Project II (formerly Introduction to Engineering Design II) – Instructor

Spring 2016 – 1 section; 44 students

Spring 2012 – 1 section; 23 students (Co-Instructor: Ashish Amresh)

EGR 201: Use-Inspired Design Project I (formerly Fall Multidisciplinary Project) – Instructor

Course Coordinator (Fall 2014 – Spring 2019 and Fall 2020)

Fall 2021 – 2 sections; 58 students (UGTA: Skylynn Lepore)

Fall 2020 – 2 sections; 80 students (UGTA: Jose Macias)

Spring 2019 – 1 section; 34 students

Fall 2018 – 1 section; 23 students

Spring 2018 – 1 section (UGTA: Kylee Burgess)

Fall 2017 – 2 sections; 61 students (UGTA: Kylee Burgess)

Spring 2017 – 1 section; 46 students (UGTA: Kylee Burgess)

Fall 2016 – 1 section; 33 students

Spring 2016 – 1 section; 42 students

Fall 2015 – 2 sections; 76 students

Spring 2015 – 1 section; 30 students

Fall 2014 – 2 sections; 77 students (UGTA: Randi Taylor)

Fall 2013 – 2 sections; 80 students

Fall 2012 – 2 sections; 80 students (Co-Instructor: Odesma Dalrymple)

Fall 2011 – 2 sections; 65 students (Co-Instructor: Odesma Dalrymple)

EGR 202: Use-Inspired Design Project II (formerly Spring Multidisciplinary Project) – Instructor

Course Coordinator (2014 & 2015)

Spring 2015 – 1 section; 33 students

Spring 2014 – 2 sections; 78 students

Spring 2013 – 1 section; 45 students

EGR 218 (formerly EGR 294): Materials & Manufacturing Processes – Instructor  
Fall 2018 – 1 section; 48 students (TA: Umesh Prasad)  
Spring 2013 – 1 section; 68 students

EGR 224: Materials Selection – Instructor  
Spring 2012 – 2 sections; 53 students  
Spring 2011 – 1 section (Faculty Associate under Ann McKenna & Caitlyn Butler)

EGR 535 (formerly EGR 598): Innovation and Design of Engineering Academic Settings (IDEAS)  
– Instructor  
Spring 2021 – 1 section; 13 students (Co-Instructor: Shawn Jordan & Steven Weiner)

EGR 574: Engineering Education Systems in Context – Instructor  
Fall 2016 – 1 section (Co-Instructor: Jeremi London); 5 students

EGR 598: Design and Implementation of Classroom-based Research  
Spring 2019 – 1 section; 5 students

EGR 673: Applications of Quantitative Methods for Engineering Education Research –Instructor  
Spring 2018 – 1 section  
Spring 2017 – 1 section (Co-Instructor: Jennifer Bekki); 5 students

CEVE 565: NanoEnvironmental Engineering For Teachers (NEET)  
Spring 2019 – 1 section; 6 students (co-offered through Rice University)  
(Co-Instructors/TAs: Zhen Zhao & Anjali Mulchandani)

#### **COURSES TAUGHT AT TUFTS UNIVERSITY**

EN 10: Prototyping Home Robots/Simple Robotics – Instructor  
Spring 2007 – 1 section (Co-Instructors: Morgan Hynes & Erin Cejka)

CHEM 01/02: Chemistry Fundamentals – Lab Instructor  
Fall 2004 – 2 sections  
Fall 2003 – 2 sections  
Fall 2002 – 2 sections

CHEM 31: Physical Chemistry – Lab Instructor  
Spring 2004 – 1 section

#### **GUEST LECTURER**

ENGR 1650 – Engineering Education Fundamentals, Rowan University  
Fall 2020

MSE 791 – Special Topic: Engineering Education Theory, University of Nevada, Reno

Fall 2020

EGR 590-610 – Teaching Undergraduate Engineers, North Carolina State University  
Spring 2019 & Fall 2019

ENE 691 – Fundamentals of Engineering Education, Arizona State University  
Fall 2012

### **ADVISING AT ARIZONA STATE UNIVERSITY**

#### Dissertation Chair/Co-Chair

Eunsil Lee – “Re-thinking Engineering Doctoral Students’ Sense of Belonging: In consideration of Diversity in Citizenship and Interpersonal Interactions” – July 2020, Ph.D. Engineering Education Systems & Design (Co-Chair: Jennifer Bekki)  
\* Current Position: Postdoctoral Scholar, Florida International University  
Zhen Zhao – “TBD” – Expected Spring/Summer 2022, Ph.D. Engineering Education Systems & Design

#### Dissertation Committees

Bala Sundaram – “TBD” – Expected 2023 (Chair: Nadia Kellam)  
Mark Huerta – “Inner engineering: A multiphase mixed methods study evaluating the use of mindfulness training to cultivate intrapersonal and interpersonal skills among first-year engineering students” – June 2019, Ph.D., Engineering Education Systems & Design (Chair: Ann McKenna)  
\* Current Position: Lecturer, Arizona State University  
Medha Dalal – “Interdisciplinary Engineering Research Collaborations: Exploring Ways of Thinking using a Mixed Methods Approach” – May, 2019, Ph.D. Learning, Literacies & Technology (Chair: Leanna Archambault)  
\* Current Position: Postdoctoral Scholar, Arizona State University  
Carl Whitesel – “Relationships Among Personal Characteristics, Self-Efficacy, and Conceptual Knowledge of Circuit Analysis of Community College Engineering Students” – May, 2014, Ph.D. Curriculum & Instruction (concentration Engineering Education) (Chair: Dale Baker)  
\* Current Position: Faculty, South Mountain Community College

#### Master’s Chair

Jonah Lerner – “Low-Budget, Variable-Length, Arduino-based Robotics Professional Development” – April 2020, Engineering

#### Postdoctoral Research Scholars

Medha Dalal – Summer 2019 – Summer 2022

#### Graduate Research Assistants

Sanjeev Kavale – Fall 2021 - present  
Rachel Figard – Fall 2021 – present  
Marcus Melo de Lyra – Fall 2021 – present  
J. Hadley Perkins – Fall 2021 – present



Zhen Zhao – Spring 2018 – present  
Malay Nagda – Spring 2020 – Spring 2021  
Roberto Renteria – Fall 2020 – Spring 2021 (co-managed by Samantha Brunhaver and Jennifer Bekki)  
Eunsil Lee – Fall 2016/Spring 2017/Summer 2018/Summer 2020  
Medha Dalal – Spring 2018  
Shreya Vaishnav – Fall 2015/Spring 2016 (co-managed by Samantha Brunhaver and Jennifer Bekki), Summer 2016, and Spring 2017  
Stephanie Aoki – Spring 2017

#### Undergraduate Researcher Assistants

Jacob Rotary – Summer 2021 – present  
Samantha Nieto – Fall 2020 – present  
Kiara Crawford – Spring 2020 – Spring 2021  
Derek Warmington – Fall 2019 – Summer 2020  
Cherrylynn Nethken – Fall 2015/Spring & Summer 2016 (co-managed by Kristine Csavina)  
Randi Taylor – Fall 2014/Spring 2015  
Hannah Kolar – Fall 2011/Spring 2012

#### Fulton Undergraduate Research Initiative (FURI)

Mason Smith – “Effects of Optimized Learning Environment on Student Engagement and Success” – 2018/2019

#### Honors Advising

##### Thesis Chair

Nathaniel Rossi – “Elements of Good Problem-Solving Tasks in Thinking Classrooms” – 2020  
Jonah Lerner – “Low-Budget Variable-Length Arduino-Based Robotics Unit” – 2019

##### Thesis Committee

Nicholas Radda, Ian Jacobs & Nathan Chaisson – “Prosthetic Foot Fatigue Tester” – 2015 (Chair: Mark Henderson)  
Megan Kearn & Parick Lu – “On Cloud 9: An Innovative Remote Robotics Programming Platform” – 2011 (Chair: Winslow Burleson)  
Kevin McMillin – “Game As Life, Life As Game (GALLAG): A Physical Design Toolkit Allowing Educators to Create Interactive Learning Games” – 2011 (Chair: Winslow Burleson)

#### Honors Independent Study

Travis Marshall – ASU Trebuchet Club Activities

#### Honors (Non-Thesis) Research Projects/Contracts

Fall 2012: Michael Birner, Nathaniel Chaisson, Wesley Coomber, Andrew Heiman, Ian Jacobs, James Oplinger, Nicholas Radda & Samantha Twet  
Spring 2014: Andrew Heiman, Ian Jacobs & Samantha Twet  
Fall 2013: Emily Montoya, Weston Olson, & Tyson Stevenson  
Spring 2014: Victor Wise & Matthew Dickens

Fall 2015: Bryce Beagle, Alexander Thiel, & Benjamin Shuch  
Spring 2016: Austin Armstrong, Andrew Creasman, Nathan Dwight, Connor Giam,  
Jonah Lerner, Guston Lighthouse, Randolph Moore, Justice Sibole, &  
Jobana Westbay  
Fall 2017: Nathan Saylor  
Spring 2018: Jose Macias  
Fall 2018: Timothy Englehart, Deborah Eisenberg, Gerard Fusaro, Jose Macias, and  
Daniel Mester (2)

Internship (part of EGR 484; structured practical experience co-supervised by practitioners at Intel)  
Christopher Lopez – Spring 2015

Senior Capstone Design (part of EGR 402/MET 461; co-advised by Changho Nam)  
Luis Alcalá, Richard Husk, Christopher Largent, Shawn Riggs, and David Voia-Tipei –  
Electric Taxing System (ETS) Cockpit Control Panel, Sponsor: Honeywell –  
2011/2012

Girls Leadership Academy of Arizona InvenTeam Mentors – 2013  
Hannah Kolar, Alexandra Schneider, Joseph Burggraff, Abiola Doherty & Beverly Horvath

#### **WORKSHOP, WEBINAR, OR SPECIAL SESSION FACILITATOR**

1. Lopez Roshwalb, J., Carberry, A., Rudnick, M., & Cantrell, K. (2021). Sponsored Session: Engineering for US All (e4usa) Program Overview. American Society for Engineering Education Virtual Conference & Exposition.
2. Bekki, J., Brunhaver, S., Carberry, A., Kellam, N., Jordan, S., Lande, M., & McKenna, A. (2019). Becoming a Pedagogical Ninja with the ASU RED Team. NSF RED Consortium Meeting, Alexandria, VA
3. Larson, J., Carberry, A., Jordan, M., Cook-Davis, A., & O'Donnell, M. (2019). The ASU Tri-ERC Consortium: Establishing a common set of tools for evaluating educational programs within and across ERCs. NSF ERC Biennial Meeting, Arlington, VA
4. Pines, D., Reid, K., Kouo, J., Carberry, A., Berhane, B., Ladeji-Osias, K., Miller, M., Klein-& Gardner, S. (2019). Engineering for Us All. NSF EEC Grantees Conference, Arlington, VA.
5. Edström, K., Benson, L., Mitchell, J., Bernhard, J., van den Bogaard, M., Carberry, A., & Chance, S. (2019). Reviewing for engineering education journals. European Society for Engineering Education Annual Conference, Budapest, Hungary
6. Carberry, A. (2019). Making student assessment meaningful workshop, Il Simposio Buenas Prácticas de “Assessment” en Ingeniería, Universidad del Norte, Barranquilla, Colombia
7. Benson, L., Le Roux, K., Swart, J., Case, J., Finelli, C., Carberry, A., Edström, K., and van den Bogaard, M. (2019). Unpacking the writing and publishing process for engineering

education researchers. Research in Engineering Education Symposium, Cape Town, South Africa

8. Brunhaver, S. & Carberry, A. (2019). Meet the engineering education pioneers redux. Sponsored Panel. American Society for Engineering Education Conference & Exposition, Tampa, FL
9. Pines, D., Reid, K., Carberry, A., Ladeji-Osias, J. K., Calabro, K., Klein-Gardner, S., & Miller, M., (2019). E4USA Technical Session. American Society for Engineering Education Conference & Exposition, Tampa, FL
10. Brunhaver, S., Carberry, A., London, J., Yasuhara, K., Allendoerfer, C., Case, J., Newstetter, W., Turns, J., Finelli, C., Sheppard, S., Atman, C., McKenna, A., Smith, K., & Watson, K. (2018). [Special Session: Meet the engineering education pioneers – panel & roundtable](https://doi.org/10.1109/FIE.2018.8658786). ASEE/IEEE Frontiers in Education Conference, San Jose, CA  
<https://doi.org/10.1109/FIE.2018.8658786>
11. Carberry, A.R., Atwood, S.A., Diefes-Dux, H.A., & Siniawski, M.T. (2017). Making Grades Meaningful – Building a Community of Practitioners Workshop. American Society for Engineering Education Conference & Exposition, Columbus, OH
12. Carberry, A.R., Atwood, S.A., Diefes-Dux, H.A., & Siniawski, M.T. (2016). Making Grades Meaningful – Best Practices for Implementing a Learning Outcomes-based Grading System in Project Courses Workshop. American Society for Engineering Education Conference & Exposition, New Orleans, LA
13. Csavina, K. & Carberry, A. (2016). Reflection in Engineering Courses: Focus on Capstone Workshop. Capstone Design Conference, Columbus, OH
14. Csavina, K. & Carberry, A. (2016). The Value of Reflection in the Mid Years of Engineering Special Session. Mid Years Engineering Experience (MYEE) Conference, College Station, TX
15. Krause, S.J., Baker, D.R., Carberry, A. R., Alford, T.L., Ankeyny, C. J., Koretsky, M., Brooks, B.J., Gilbuena, D.M., Waters, C., Gibbons, B.J., STuard, W.J., Maass, S., & Chan, C.K. (2014). Web-enabled Tools and Resources for More Effective Teaching and Learning Workshop. American Society for Engineering Education Conference & Exposition, Indianapolis, IN (2014)
16. Krause, S.J., Carberry, A.R., Koretsky, M., Waters, C., & Stuart, W.J. (2013). Fast Formative Feedback to Enhance Learning and Motivation Workshop. American Society for Engineering Education Conference & Exposition, Atlanta, GA (2013)

## **INVITED PANELS**

1. Lessons Learned: Panel of Current and Former Research Initiation in Engineering Formation (RIEF) Participants. Panel for the RIEF Virtual Community of Practice Workshop Series (2020)
2. Basics of Research: The Context of Research in Engineering Education. Indo Universal Collaboration for Engineering Education (IUCEE) Engineering Education Research Scholar Certification Virtual Panel (2020)
3. Do Disciplines Matter for the Engineer of 2040? American Society for Engineering Education Conference & Exposition, Tampa, FL (2019)
4. How to Thrive (Not Just Survive) in Academia. Arizona State University EESD Seminar Series (2018)
5. Insights on Selecting a Research Topic, Question, or Advisor. Arizona State University EESD Seminar Series (2017)
6. Community in Engineering Education: Past, Present and Future. American Society for Engineering Education Conference & Exposition, New Orleans, LA (2016)
7. How to be a Successful Professional in Academe & Industry. American Society for Engineering Education, Indianapolis, IN (2014)

## **SUMMARY OF PROFESSIONAL ACTIVITIES, ENGAGEMENT, AND SERVICE**

### **ARIZONA STATE UNIVERSITY SERVICE/ENGAGEMENT**

Fulton Schools of Engineering Teaching and Learning Hub – Inaugural Faculty Steering Committee (2021 – present)

Student Club Advisor/Coach

ASU Disc Golf Club (Disc Devils @ ASU) Advisor (2017 – present)

ASU NASA Human Exploration Rover Challenge Club/Team Advisor (2015 & 2016)

Arizona State University Club Athletics: Caliente Women's Ultimate Team – Volunteer Assistant Coach (2011 – 2012); Head Coach (2012 – 2015)

Sun Devil ROV Club Faculty Advisor (2012 – 2013)

Volunteer

Fulton Schools of Engineering E2 Camp Volunteer (2015, 2016, 2020 & 2021)

Late Night Breakfast @ Poly Volunteer Server (Fall 2014)

#### Committees/Working Groups/Task Forces

The Polytechnic School Graduate Affairs Committee (Spring 2021 – present)

The Polytechnic School Graduate Scholarship Committee (2021 – present)

The Polytechnic School Personnel Committee (Fall 2020)

Fulton Schools of Engineering Curriculum Committee (2017 – 2019)

Poly Faculty Fellows – Project Spine Chiropracty Working Group (2016 – 2018)

Engineering Education Systems and Design (EESD) Executive Committee (2017 – 2019 & 2020 - present)

#### Faculty Search Committees

Engineering Education (2018/2019) – Chair

Engineering Education (2015/2016)

Design Education and Learning Systems (2014/2015)

MET Automotive (2011/2012)

EGR 100 & 200-level Project Course Alignment Working Group (Summer 2013)

Dean's Student Advisory Committee – EGR Faculty Representative (2012 – 2014)

CTI Engineering Engagement Committee (2012 – 2014)

Sophomore Fundamental Course Development Working Group (Summer 2012)

CTI Human-Centered Design Task Force (Fall 2011)

#### **ADVISORY BOARDS & COUNCILS**

Engineering Education Chairs and Heads Alliance (2021 – present)

Pilot Presented to Engineering Change Lab (ECL-USA): Understanding the Environmental Protection, Social Justice, and Diversity, Equity, and Inclusion Perspectives of Practicing Engineers (PI: Darshan Karwat) (2021)

Engineering Education Research Taxonomy Review Committee (2020)

Gilbert Public Schools Planning Committee – Core Strategy 2: Personalization (November 2016 – February 2017)

Eureka STEM Advisory Board – Puerto Rico (2013 – present)

NSF Collaborative Research: Multimedia Engineering Notebook Tools to Support Engineering Discourse in Urban Elementary School Classrooms (PIs: Kristen Wendell & Patricia Paugh, University of Massachusetts, Boston; Christopher Wright, University of Tennessee) (2013 – 2016)

NSF Engineering Education Pioneers and Trajectories of Impact (PIs: Cynthia Atman, Jennifer Turns, & Ken Yasuhara, University of Washington) (2013 – 2015)

LEGO Education Ambassador Program (LEAP) (2014)

NSF Collaborative Research: Assessing the Effect of Contextual Exercises on Student Adoption of Expert CAD Modeling Techniques (PI: Bugrahan Yalvac, Texas A&M University) (2012 – 2014)

LEGO Education Advisory Panel (LEAP) (2013)

Graduate Engineering Education Consortium for Students (GEECS) (2011 – 2012)

American Society for Engineering Education Student Division (2011 – 2014)

Tufts Graduate Student Council – Chemistry Department Representative (2002 – 2003)

## **PEER-REVIEW SERVICE**

Associate Editor

Journal of Engineering Education (2018 – 2021)

Editorial Board

International Journal for Service Learning in Engineering Guest Editorial Board (2014 – 2020)

Guest Editor

Entrepreneurship Education and Pedagogy (2018-2019) – co-editors Cheryl Bodnar and Aileen Huang-Saad

European Journal of Engineering Education (2017-2018) – co-editors Bill Williams and Maria Catalina Ramirez Cajiao

Journals

Journal of Engineering Education (since 2009)

IEEE Transactions on Education (since 2009)

Advances in Engineering Education (since 2010)

Journal of Pre-College Engineering Education Research (since 2012)

Online International Journal of Arts and Humanities (since 2012)

International Journal for Service Learning in Engineering (since 2013)

European Journal of Engineering Education (since 2016)

Computers & Education (since 2016)

Learning and Instruction (since 2017)

Australasian Journal of Engineering Education (since 2018)

Journal of Women and Minorities in Science and Engineering (since 2021)

#### Books

Oxford University Press (2011 & 2012)

Elsevier (2013)

#### **PROPOSAL REVIEW SERVICE FOR EXTERNAL FUNDING AGENCIES**

National Science Foundation Engineering Education and Centers (EEC) Division Committee of Visitors (COV) Review Panel (2020)

National Science Foundation: 10 Panel Reviews (2011 – 2020) and 1 Ad-hoc Reviewer (2011)

Directorates: Education & Human Resources (Division of Research on Learning in Formal and Informal Settings and Division of Undergraduate Education)  
Engineering (Division of Engineering Education & Centers)

Programs: Advancing Informal STEM Learning (AISL) Program

EHR Core Research: Production Engineering Education and Research (ECR:PEER)

Graduate Research Fellowship Program (GRFP)

Innovative Technology Experiences for Students and Teachers (ITEST)

IUSE/Professional Formation of Engineers: Revolutionizing Engineering Departments (IUSE/PFE: RED)

Promoting Research and Innovation in Methodologies for Evaluation (PRIME)

Research in Engineering Education (REE)

Research Initiation Grants in Engineering Education (RIGEE)

Research in the Formation of Engineers (RFE)

Robert Noyce Teacher Scholarship Program

Chilean Government National Commission for Scientific and Technological Development (Comisión Nacional de Investigación Científica y Tecnológica – CONICYT)

National Fund for Scientific and Technological Research (FONDECYT) Program

## COMMUNITY OUTREACH ENGAGEMENT

Meet the Engineering Education Faculty Virtual Community Meet-up – Co-Facilitator (November 2020)

e4usa K-12 Teacher Professional Development Workshop – Co-Facilitator (June 2019, July 2019, January 2020, Summer 2020, January 2021, and July 2021)

[Engineering Education Community Resource Wiki](#) – Co-Maintainer w/Ken Yasuhara

ASU Barrett Honors College Summer Scholars Program – Instructor (1-2 week program; June 2014 –2019)

Guest Scientist Day, William C. Jack Elementary, Glendale, AZ (May 2015)

Barton's Summer Academy, Beijing, China – Instructor (10-day Computer Robotics Program; July 2012)

Camp Eureka, San Juan, Puerto Rico – Instructor; 3-weeks (June 2010) and 1-week (July 2012)

Access ASU K-12 LEGO Camp – Instructor (June 2012)

ASU Preparatory Academy Science Fair – Judge (2012)

STEM in the Middle: It Takes a Village (Project led by Carole Greenes, Associate Vice Provost for STEM Education at Arizona State University) – Workshop teacher and curriculum designer (April – May 2011)

Educacion Ciencia Sociedad XII Coloquio AMMCCyT, Monterrey, Mexico – Presenter and Facilitator (August 2009)

King Abdullah University for Science and Technology (KAUST) Orientation, Jeddah, Saudi Arabia – Facilitator contracted by Disruptive Play (UAE) & RobotLab (Denmark) (January 2009)

The Meadowbrook School, Weston, MA – Teacher Trainer (Summer 2009 & 2010)

Youth Economic Summit (YES), Greenville, SC – Facilitator contracted by RobotLab (Denmark) (October 2008)

YMCA Teen Ambassadors, Malden, MA – Teacher/Trainer of Student Ambassadors (January – May 2007)

LEGO Engineering (formerly ROBOLAB) Conferences/Workshops  
Colorado Springs, CO (April 2009)  
Tucson, AZ (April 2009)  
Annapolis, MD (December 2008)



Enfield, CT (April 2006, 2007, 2008, & 2009)  
Carlsbad, CA (June 2007 & September 2009)  
Austin, TX (August 2006)

LEGO Engineering Symposium/Workshop, Medford/Somerville, MA (January 2007 & 2008; June 2009)

## CONFERENCE ACTIVITIES

Inaugural Practicing Reflection in Engineering Education Mini-Conference  
Co-Organizer (2016)

Clive L. Dym Mudd Design Workshop – International Journal of Engineering Education Special Issue  
Reviewer (2015, 2017 & 2019)

Research in Engineering Education Network (REEN)  
Governing Board (2016 – 2019)  
Chair (2017 – 2019)  
Symposium Reviewer (2015, 2017 & 2019)  
Symposium Moderator (2017 & 2019)

Frontiers in Education Conference  
Reviewer (2011 – 2020)  
Session Chair (2010 – 2014)  
Philosophy of Engineering and Engineering Education Workshop Planning Committee (2011)

American Society for Engineering Education (ASEE)  
Annual Conference Reviewer (2007 – 2020)  
Annual Conference Moderator (2010 – 2019); Roundtable Moderator (2015)  
Educational Research and Methods Secretary-Treasurer (2014 – 2016)<sup>+++</sup>  
Educational Research and Methods Webmaster (2012 – 2014)<sup>++++</sup>  
Educational Research Methods Division Strategic Planning Committee (2013)  
Educational Research Methods Division Nominating Committee (2011 – 2012)  
Educational Research Methods Best Paper Award Reviewer (2012 & 2014)  
Educational Research Methods Committee to Assess ASEE Program Chair Needs (2012)  
Educational Research Methods Apprentice Faculty Grant Award Reviewer (2012, 2014, 2017, & 2019)  
Community Engagement Division Treasurer (2011 – 2015)<sup>+++</sup>  
Student Constituent Committee Zone Liaison (2009 – 2011)<sup>++++</sup>  
Student Division Mentorship through Proposed Research Mentor (2013, 2015, & 2016)  
Tufts University American Society for Engineering Education Student Chapter President (2009 – 2010)<sup>+++</sup> & Founder

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<sup>+++</sup> Elected Position

<sup>++++</sup> Appointed Position

International Conference of the Learning Sciences (ICLS)  
Conference Reviewer (2014 & 2016)

American Educational Research Association (AERA)  
Division C Executive Review Board for Section 1e (Engineering & Computer Science)  
(2013, 2016 & 2017)  
Division D: Measurement & Research Methodology Reviewer (2009)

European Society for Engineering Education (SEFI)  
Doctoral Symposium on Engineering Education Mentor (2019)

International Design Engineering Technical Conferences (IDETC) & Computers and Information  
in Engineering Conference (CIE)  
Reviewer (2009)

### **FELLOWSHIP/WORKSHOP/PROFESSIONAL DEVELOPMENT PARTICIPATION**

ERC Conference on Workforce Development, Inclusion, and Student Leadership (January 2019 –  
North Carolina State University, Raleigh, NC)

KEEN Faculty Needs Assessment Workshop (January 2019 – Dallas, TX); 1 of 21 attending

Summit on Transforming the Culture of Faculty Service/Engagement (November 2018 – Lehigh  
University, Allentown, PA)

NSF Research Experience for Teachers Leveraging our Collective Impact Conference (October  
2018 – North Carolina State University, Raleigh, NC)

ASU Convening of Faculty Mentorship (Think Tank 1 & 2) (August & November 2018 – Arizona  
State University)

Jewish National Fund Faculty Fellowship Program in Israel (December 2017/January 2018); 1 of 23  
selected

Workshop on Reflection in Engineering Education (September, 2017 – University of Washington,  
Seattle, WA)

Entrepreneurial Mindset Symposium (December 2016 – Chandler, AZ); 1 of 20 attending

Innovation through Propagation: Determining Next Directions in Engineering Education  
Workshop (October 2015 – University of Pittsburgh, Pittsburgh, PA); 1 of 24 invited faculty

Rose-Hulman Making Academic Change Happen (MACH) Workshop (June 2015 – Seattle, WA)

ASCE Mini Excellence in Civil Engineering Education (ExCEED) Teaching Workshop (January  
2014 – Arizona State University, Mesa, AZ)

Mapping the Field of Engineering Education Workshop (May 2013 – University of Michigan, Ann Arbor, MI); 1 of 46 faculty selected

Engineering Learning Through Service Workshop (August 2012 – Michigan Tech, Houghton, MI); 1 of 19 faculty selected

International Conference for the Learning Sciences Early Career Workshop (July 2012 – Sydney, Australia); 1 of 15 faculty selected

PEER Collaborative National Workshop (August 2011 – University of Georgia, Athens, GA, 1 of 24 and faculty selected (repeated attendance in June 2013 – Atlanta, GA; June 2014 – West Lafayette, IN; June 2015 – Seattle, WA; June 2016 – New Orleans, LA)

Virginia Tech Future Faculty Development Program (January 2011 – Virginia Tech, Blacksburg, VA); 1 of 2 selected in Engineering Education

Graduate Engineering Education Consortium for Students – Inaugural Meeting (January, 2010 – NSF EEC Awardees Conference – Reston, VA); 1 of 10 graduate students selected

Engineer of the Future 2.0 (April 2009 – Olin College, Needham, MA)

### **PROFESSIONAL ASSOCIATION MEMBERSHIPS**

American Society for Engineering Education (ASEE) (2007 – present)

American Educational Research Association (AERA) (2008 – present)

Research in Engineering Education Network (REEN) (2009 – present)

National Association for Research in Science Teaching (NARST) (2020 – present)

International Society of the Learning Sciences (ISLS) (2010 – 2016)

ASM International – The Materials Information Society (2010 – 2011)

The Minerals, Metals, & Materials Society (TMS) (2002, 2010 – 2011)

National Postdoctoral Association (NPA) (2011)

American Association for the Advancement of Science (AAAS) (2010)

USA Ultimate (formerly Ultimate Players Association) (2007 – present)

### **CERTIFICATIONS (PAST & PRESENT)**

Level 1 United States of America Ultimate Frisbee Coach (2012, recertification 2015)

Leadership in Energy and Environmental Design (LEED) Accredited Green Associate (2011)

Level 1 United States of America Track & Field (USATF) Coach (2006)

Occupational Safety and Health Administration (OSHA) Certification (2002)

Cardiopulmonary Resuscitation (CPR) Certification (2002, 2010 & 2019)

### **ADDITIONAL ACTIVITIES**

United States of America Ultimate (USAU)

Snowbirds (Mixed Masters Club) – Founder, Player, and Captain (2019)  
National Qualifier (2019)

Rubix (Mixed Club) – Co-Founder, Player, and Captain (2013 – 2017)

Coconino Classic – Tournament Director (2016 & 2017)

Valley of the Sun (VOTS) Ultimate Instructional League – Developer and Instructor (2012 – 2017)

Crawl (Men’s Masters Club) – Player (2013, 2015, 2017 & 2018)  
National Qualifier (2013, 2015, & 2017)

World’s Qualifier (2018)

Sprawl (Open Club) – Player (2011)

LPFK (Boston Ultimate Disc Association, Mixed Club) – Co-Founder, Player, Captain, and  
General Manager (2008 – 2010)

Tufts University Athletics

Men’s Indoor and Outdoor Track & Field – Volunteer Assistant Coach (2003 – 2009) and  
Athlete (2002)

E-Men Ultimate – Player (2009 – 2010)

Tufts Summer League Softball – Education Department Team Captain & Founder (2004 – 2010)

Alfred University Athletics

Cross-Country, Indoor and Outdoor Track & Field – Athlete (1998 – 2002) and Captain  
(2001 – 2002)