

Sarah Jane (SJ) Bork

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EDUCATION

The University of Michigan, Ann Arbor, Michigan

Doctor of Philosophy in Engineering Education Research (EER)

August 2023

Master of Science in Engineering Education Research (EER)

December 2020

Coursework: Mental Health Policy in the United States, Transitions to Adulthood in Developmental and Ecological Context, Psychometric Theory, Design Based Research, Foundations of EER, Frameworks in EER

The Ohio State University, Columbus, Ohio

Master of Science in Electrical and Computer Engineering

August 2017

Bachelor of Science in Electrical and Computer Engineering with a minor in Physics

May 2017

RESEARCH EXPERIENCE

Engineering Education Research

Assistant Professor, Engineering Education Transformations Institute, UGA – PI

August 2023 – present

Graduate Student Researcher, Mondisa Engineering Education Research Group

August 2018 – 2023

Applying social science and educational research methods to understand and improve students' experiences.

Science, Engineering, and Mathematics Graduate Student Mental Health: Using qualitative and quantitative methods in to explore the mental health experiences of science, engineering, and mathematics graduate students. Spearheading a scoping literature review while mentoring two undergraduate students through the data collection. Conducting descriptive and inferential statistical analysis on multi-institutional survey data to explore relevant factors related to mental health outcomes. Designed a novel photo-elicitation study, including interview and focus group protocols, to better understand their range of emotional experiences and relevant factors.

The Nature of Engineering Work: Curricular Messaging and Alignment with Diverse Undergraduate Students' Values, Interests, and Engineering Intentions:

Developed interview protocol to understand curricular experiences and alignment with student values, interests, and post-graduate intentions. Coordinating interview data collection (n=60+) in near-peer mentoring structure. Used best practices in qualitative data analysis to generate codebook and initial themes.

An Investigation of Mentors' Practices that Help Minoritized Undergraduates Persist In STEM: Analyzed and synthesized pilot study interview data on mentoring approaches, grounded and guided by literature in mentoring, intersectionality, and community cultural wealth. Performed inter-rater reliability checks and synthesis of findings. Analyzed, synthesized, and compiled pilot study interview data on mentoring approaches.

Sisters Rise-Up Performed quantitative analysis on survey data exploring near-peer mentoring relationships for a multi-institutional initiative to mentor women of color and boost their performance in AP exams in CS.

Graduate Student Researcher, Finelli Research Lab

August 2017 – August 2018

Researched the impact of flexible classroom spaces to explore impact on instructor pedagogy and student behavior.

Microfabrication and Cleanroom Research

Graduate Student Researcher, Yoon Lab

August 2017 – June 2018

Microfabrication and partial assembly (with optical and electrical testing) of optogenetic waveguide neural probes.

Graduate Student Researcher, Polymer Research Lab

August 2016 – July 2017

TEACHING EXPERIENCE

Teaching Apprentice, Engineering Education Research Program (UMich)

August – December 2022

EER 601: Foundations of Engineering Education Research. Mentored by Dr. Aaron Johnson (primary course)

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instructor), 12 graduate students enrolled. Lead the re-design of course curriculum, assessment, and evaluations to align course goals with student needs.

Graduate Student Instructor, College of Engineering Undergraduate Education (UMich) September 2020 – April 2021
Engineering 100, Introduction to Engineering: Continuous Improvement and Operations Management. 50 students. Responsibilities included being knowledgeable on the technical and technical communication content, generating homework and exam materials, leading specific discussion sections, holding weekly office hours, and providing summative feedback on technical content in exams and course assignments.

Graduate Student Instructor, Department of Electrical Engineering (UMich) September – December 2018
EECS 216, Introduction to Signals and Systems. Facilitated two lab sections (~20 students each section), held office hours, and provided summative feedback on exams and lab reports (course size ~150 students).

Teaching Assistant, SolidWorks, Department of Engineering Education (OSU) December 2015 – May 2016
Engineering 4410.02: Computer Graphics Using SolidWorks. ~25 students. Assisted with development of course assignments, providing summative feedback in class sessions and on assignments, and holding office hours related to learning and using computer graphics (SolidWorks) to solve engineering problems.

Lab Monitor, Introductory Electronics Lab for non-ECE majors (OSU) February – May 2016
50+ students. Assisted with hands-on lab experiments.

Student Tutor, OSU Math & Statistics Learning Center (OSU) August 2014 – December 2016
One on one tutoring for remedial math coursework.

WORK EXPERIENCE

Student Columnist, American Society for Engineering Education *PRISM* Magazine December 2021 – 2022
Spearheading and writing two columns annually on topics intersecting engineering education and current topics.
February 2022: Sharing the Treasure (Map). <https://www.asee-prism.org/micro2macro-feb/>
October 2022 (anticipated): Tiny Tweaks, Immense Impact. <https://www.asee-prism.org/micro2macro-fall/>

Engineering Teaching Consultant, Center for Research on Learning & Teaching in Engineering August 2021 – 2022
Serving as a consultant and teaching mentor for engineering graduate and undergraduate student instructors. Using near-peer mentoring and data-driven approaches to center the student instructors teaching needs.

Pulling on years of experience as a graduate student instructor, undergraduate teaching assistant, and student tutor. Serving as a consultant and teaching mentor for engineering graduate and undergraduate student instructors. Using near-peer mentoring and data-driven approaches to center the student instructors teaching needs. One-on-one consultations using observational, survey, and written data to identify instructional strengths and opportunities for improvement to meet instructional goals. Deliverable provided in form of debrief and confidential written report.

January 25, 2022: Co-Lead engaging workshop titled *Are They Getting It? Low Stakes Ways to Gauge Student Learning*, centered on teaching low-stakes formative classroom assessment techniques.

Student Trainee, Wright-Patterson Air Force Base Research Lab May 2015 – April 2016
Materials State Awareness and Sustainability Branch. Investigated different modalities for portable hand-tracking sensors using non-destructive inspection probes (eddy current).

Research Intern, AFRL Discovery Lab, Dayton, Ohio October 2013 – April 2015
Led team of four to control a robot via an Emotiv Epoc Headset, Microsoft Kinect Sensor, & Virtual World.

Student Intern, American Electric Power - Distribution Engineering Best Practices, Columbus, Ohio June 2016 – May 2017

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Aided in the rollout of a new distribution design studio program (DDS) for distribution. Tasks included editing transformer configuration diagrams, revising training manual, and validating electrical analysis data.

PUBLICATIONS

1. Rieland, J. M., & Goonetilleke, S., & **Bork, S. J.**, & Johnson, A. W. (2023). *Graduate student myths: interpreting the Ph.D. student experience through the lens of social media, memes, and stereotypes*. Paper presented at 2023 ASEE Annual Conference & Exposition, Baltimore, MD. <https://peer.asee.org/43825>.
2. Clancy, S. M., & Cabrera, B. A., & **Bork, S. J.**, & Merz, K., & Mosyjowski, E., & Daly, S. R., & Lattuca, L. R., & Mondisa, J. (2023). *Receiving curricular messages: Engineering students' understandings of valued practices in their field*. Paper presented at 2023 ASEE Annual Conference & Exposition, Baltimore, MD. <https://peer.asee.org/44023>.
3. **Bork, S. J.**, & Mondisa, J.L. (2022). Engineering Graduate Students' Mental Health: A Scoping Literature Review. *Journal of Engineering Education*, 111(3), 665-702.
4. **Bork, S. J.**, Young, N. T., & Mondisa, J.L (2022, June). Exploring the Relationship Between Culture and Science, Engineering, and Mathematics Graduate Students' Mental Health. Paper presented at 2022 ASEE Annual Conference & Exposition, Minneapolis, MN. *Best Student Paper Award for the Graduate Studies Division*. <https://peer.asee.org/41183>.
5. **Bork, S. J.**, Clarke, N., & Mondisa, J.L (2022, June). Mentoring Approaches that Support Minoritized STEM Undergraduates: A Pilot Study (EBR). Paper presented at 2022 ASEE Annual Conference & Exposition, Minneapolis, MN. <https://peer.asee.org/41071>.
6. **Bork, S. J.**, & Mondisa, J. (2021, July). *Using Photovoice to Examine the Mental Health Experiences of Engineering Graduate Students during COVID-19*. Paper presented at 2021 ASEE Virtual Annual Conference Content Access, Virtual Online. 10.18260/1-2—36525
7. Garcia, P., Perez, M., **Bork, S. J.**, Farrell, D., Ericson, B., and Mondisa, J.L. (2021, May). *Supporting Mutually Beneficial Near-Peer Mentoring Relationships Within Computing Education Programs*. Paper presented at 2021 Annual Conference on Research in Equity and Sustained Participation in Engineering, Computing, and Technology (RESPECT).
8. **Bork, S. J.**, & Mondisa, J. (2020, June), *Validation of an Instrument to Measure Science, Engineering, and Mathematics Graduate Students' Mental Health (Work in Progress)*. Paper presented at 2020 ASEE Virtual Annual Conference Content Access, Virtual Online. <https://peer.asee.org/35482>.
9. **Bork, S. J.**, & Mondisa, J. (2019, June), *Science, Engineering, and Mathematics Graduate Student Mental Health: Insights from the Healthy Minds Network Dataset*. Paper presented at 2019 ASEE Annual Conference & Exposition, Tampa, Florida. <https://peer.asee.org/33255>. *Best Student Paper Award for the Graduate Studies Division*. 10.18260/1-2—33255.
10. **Bork, S. J.**, & Tuladhar, A., & Mondisa, J. (2019, June), *Board 134: Methods for Conducting a Scoping Literature Review on Engineering Graduate Student Mental Health (Work in Progress)*. Paper presented at 2019 ASEE Annual Conference & Exposition, Tampa, Florida. <https://peer.asee.org/32242>.
11. **Bork, S. J.**, Wiwel, C. R., & Blackburn, M. W., & Johnson, A. W., & Finelli, C. J. (2018, June), *Board 12: Impact of Flexible Classroom Spaces on Instructor Pedagogy and Student Behavior*. Paper presented at 2018 ASEE Annual Conference & Exposition, Salt Lake City, Utah. <https://peer.asee.org/29895>.

IN PREPARATION

12. **Bork, S.J.**, & Mondisa, J. (2023). *Using Photovoice to Understand Engineering Graduate Students Mental Health Experiences*.
13. **Bork, S.J.**, & Mondisa, J. (2023). *The Role of Culture in Engineering Graduate Students' Mental Health Experiences*.

PRESENTATIONS, SEMINARS AND INVITED TALKS

1. Bork, S.J. & Oje, V., Co-Facilitation of Workshop at ASEE National Conference, *How to Conduct a Literature Review (Systematic & Scoping)*.
2. Bork, S. J., Young, N. T., & Mondisa, J.L (2022), in progress. Exploring the Relationship Between Culture and Science, Engineering, and Mathematics Graduate Students' Mental Health. Paper presented at 2022 ASEE Annual Conference & Exposition, Minneapolis, MN.

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3. Bork, S. J., Clarke, N., & Mondisa, J.L (2022), in progress. Mentoring Approaches that Support Minoritized STEM Undergraduates: A Pilot Study (EBR). Paper presented at 2022 ASEE Annual Conference & Exposition, Minneapolis, MN.
4. Invited talk to Dr. Finelli's research lab on engineering graduate student mental health. September 16, 2021. Focus on 2019 publication and promotion of personal well-being.
5. Bork, S. J., & Mondisa, J.L. (2021). Using Photovoice to Examine the Mental Health Experiences of Engineering Graduate Students during COVID-19 (Work in Progress). Paper presented at 2021 ASEE Virtual Annual Conference Content Access, Virtual Online.
6. Bork, S. J., & Mondisa, J. (2020, June), Validation of an Instrument to Measure Science, Engineering, and Mathematics Graduate Students' Mental Health (Work in Progress). Paper presented at 2020 ASEE Virtual Annual Conference Content Access, Virtual On line. 10.18260/1-2—35482.
7. Co-lead a workshop with Dr. Joi-Lynn Mondisa titled "Fostering Well-being, An Entering Mentoring Series Curricula". University of Michigan, January 9, 2020.
8. Methods for Conducting a Scoping Literature Review on Engineering Graduate Student Mental Health (Work in Progress). ASEE 2019 Annual Conference, Tampa, FL, June 18, 2019. (Poster)
9. Quantitative Analysis of STEM Graduate Student Mental Health. ASEE 2019 Annual Conference, Tampa, FL, June 17, 2019.
10. EER Work-in-progress Session on Graduate Student Mental Health. University of Michigan EER Community Lead Research Session, Ann Arbor, MI, October 31, 2018.
11. Impact of Flexible Classroom Spaces on Instructor Pedagogy and Student Behavior. ASEE 2018 Annual Conference, Salt Lake City, UH, June 25, 2018. (Poster)
12. EER Guided Discussion Co-Lead on Engineering and Gender. University of Michigan EER Journal Club, Ann Arbor, MI, February 16, 2018.

SKILLS AND PROFICIENCIES

Quantitative Analysis: descriptive statistics (mean, median, mode, standard deviation, variance, IQR); inferential statistics (t-tests, regression); psychometric statistics (factor analysis [EFA&CFA], item response theory, instrument development)

Qualitative Analysis: data collection (interviews, focus groups, image collection, text analysis); analysis (open coding, thematic, a priori via theoretical or conceptual frameworks); validity concerns (inter-rater reliability, member checking)

Statistical Programs: R, Stata, M-Plus, Excel

SERVICE AND LEADERSHIP ROLES

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|---|------------------------------------|
| JEE Reviewer | April 2021; September-October 2021 |
| ASEE Reviewer | 2019 – present |
| American Society for Engineering Education, Co-Program Chair, National Student Division | August 2021 – June 2022 |
| Graduate Society of Women Engineers (GradSWE), University of Michigan <i>Co-Director (June 2022 – 2023)</i> <i>Treasurer (January – June 2022)</i> <i>Co-Officer Professional Development (September 2020 – December 2021)</i> , planning and executing professional development events for graduate students. Includes informal conversational events (Cookie & Coffee Chats, C&CC) and targeted events. Oct. 27, 2020 - <i>C&CC: Support for the Election Climate</i> partnered with Wolverine Wellness (6 attendees) Nov. 17, 2020 - <i>Identifying and Building your Professional Brand</i> panel event, partnered with Cara Gonzalez in Michigan's Engineering Communication and Marketing Team, EECS Department, and RSG (27 attendees). Secured funding from EECS and RSG for event. Jan. 28, 2021 - <i>C&CC: Looking into 2021</i> focusing on reflecting and setting goals (16 attendees) Feb. 25, 2021 - <i>Website Workshop</i> , walked through the basics creating a website on WordPress.com, self-developed content, (31 attendees) | September 2020 – June 2023 |

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Apr. 7, 2021 - *C&CC: Conflict in the Digital World* partnered with OSCR (10 attendees)
July 28, 2021 – *Making the Most out of LinkedIn* (22 attendees)
August 10, 2021 – *Recent Graduate Panel: Domestic Students* (9 attendees)
August 17, 2021 – *Recent Graduate Panel: International Students* (17 attendees)
September 3, 2021 – *Dress for Success Newsletter*
September 3, 2021 – *Professional Headshots with GradSWE* partnered with the Aerospace Department and done through Michigan Photography (70 attendees). Secured funding with Aerospace Department.
September 12, 2021 – *Career Fair Reception* (64 attendees)
September 29, 2021 – *Interpersonal Skills Workshop: Overview of Emotional Intelligence*. Secured funding from OSA. (11 attendees)
October 12, 2021 – *Donut & Cider Study Hall*. Provided space and breakfast for GradSWE active members. (23 attendees)
October 23, 2021 – Assisted Activities Team with *Pumpkin Picking & Carving + Pizza*. (23 attendees)
November 10, 2021 – *Practicing Informational Interviews & Template*. Virtual event to practice and meet other female graduate students. Emailed template used to membership. (5 attendees)
December 7, 2021 – *Hot Chocolate Study Hall*. Provided space and breakfast for GradSWE active members.
February 16, 2022 – Supported Activities Team with *Red Velvet Cookie House Decorating* (27 attendees)

American Society for Engineering Education, University of Michigan Student Chapter

May 2019 – 2023

Member (June 2022 – 2023)

Vice President (May 2019 – May 2022). Organized professional development and informational events for engineering graduate students interested in teaching and academic careers. Events include:

August 13, 2019 - *Future Faculty Writing Series, Research Statement Workshop* (21 attendees)

November 19, 2019 - *Teaching Side of Academia with Dr. Caballero* (13 attendees)

November 12, 2020 - *Exploring the Teaching Side of Academia, Virtual Panel* (~10 attendees)

March 23, 2021 - *Careers in Education, Virtual Panel* (~10 attendees)

March – April 2021 - *ASEE Book Club, Teaching and Learning STEM (Felder and Brent)* (10 RSVPs)

September 14, 2021 – *Welcome Dinner* (16 attendees)

September 21, 2021 – Journal Club on EER Seminar Speaker, Dr. Trevion Henderson; facilitated discussion

October 19, 2021 – Journal Club on EER Seminar Speaker, Dr. Aaron Johnson

November 2, 2021 – Journal Club on EER Seminar Speaker, Dr. DeLean Tolbert Smith

November 17, 2021 – *Exploring the Teaching Side of Academia: Academic Panel*. Panel with four UMich staff and faculty in various teaching roles to speak on experiences. (35 attendees)

November 30, 2021 – Journal Club on EER Seminar Speaker, Dr. Inés Dieito

January 19, 2022 – Meet & Greet with EER Seminar Speaker, Dr. Brooke Coley

February 9, 2022 – Meet & Greet with EER Seminar Speaker, Dr. Erika Mosyjowski

March 9, 2022 – Meet & Greet with EER Seminar Speaker, Dr. Patricia Jaimes {in planning}

March 15, 2022 – *Exploring the Teaching Side of Academia: Academic Panel*. {in planning}

April 6, 2022 – Meet & Greet with EER Seminar Speaker, Dr. Homero Murzi {in planning}

College of Engineering Graduate Student Advisory Committee, EER Rep. (UMich)

September 2019 – 2023

Healthy Minds Writing Lab

December 2020-2021

Rackham Student Government

January – December 2018; September 2019 – August 2020

President (May – August 2020). Advocated on behalf of graduate student needs at school, local, state, and national levels to elevate the voice of graduate students with an emphasis on mental health and wholistic wellbeing.

Established collaborations with other student leaders across programs and professional schools for joint efforts in advocacy and event programming to serve graduate student needs. Resolutions and joint efforts include:

Mar. 12, 2020 - *Sexual Misconduct Resolution*

May 28, 2020 - *Tuition and Housing Freeze Resolution*

June 3, 2020 - *[GEO, GRIN, RSG, & SCOR] UM – Support the Black Community*

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June 25, 2020 - *GEO & RSG Call to Action – Car and Bike Caravan and Rally on UM Fall Plans*

June 25, 2020 - *Racial Justice Resolution*

June 29, 2020 - *CSG & RSG Statement to Board of Regents on Tuition and Housing Freeze*

August 5, 2020 - *Graduate & Profession Student Council, Concerns Regarding the COVID-19 Pandemic & University Response for the 2020-21 Academic Year*

Mental Health Director (January – May 2020). Art wellness events; Spearheaded COVID-19 survey of UMich graduate students in response to the rapidly evolving pandemic, resulted in town halls, event series, and resource guide for students (e.g. emergency funding, campus resources, etc.).

Division II Representative (January – December 2018; September 2019 – May 2020). Severed on budgetary, legislative affairs, and communications committee.

Senate Assembly, Student Health Insurance Committee, University of Michigan September 2019 – August 2020

Student Advocates for Graduate Education January – August 2018; September 2019 – August 2020
Co-Chair Mental Health Working Group (September 2019 – April 2020). Advocated for graduate student research funding, immigration reform, campus safety, and student debt to Congress.

Active Minds, University of Michigan Chapter October 2019 – May 2020

Council for the Promotion of American Graduate Education October 2018 – September 2019

Lurie Nanofabrication Facility User Committee October 2017 – August 2018
Advocated for student facility users in addition to participating in programs to increase community engagement

RELATED CERTIFICATES AND WORKSHOPS

Photovoice Analysis and Scholarly Presentation Workshop (MSU, contact Diane Doberneck) November 2020

Search Inside Yourself (mindfulness-based emotional intelligence training) October 2020

Designing Your Life (six-week seminar, designing fulfilling career) September – October 2020

Instrument Validation Workshop (CEDER – UMich) April 2018

Passed Fundamentals of Engineering (FE) Electrical and Computer Exam - Ohio board August 2017

SOLIDWORKS Mechanical Design – Certified Associate May 2015

HONORS AND AWARDS

Recipient of Rackham's Susan Lipschutz Fund for Women Graduate Students through the Dr. Teh-Hsun & Mang-Shuen Lee Endowment Fund Award, 2022 (University of Michigan)

Recipient of Richard F. & Eleanor A. Towner Prize for Distinguished Academic Achievement, 2021 (University of Michigan)

American Society for Engineering Education Graduate Studies Division Best Student Paper Award, June 2019 (ASEE)

Recipient of Rackham Merit Fellowship, 2017-2021 (University of Michigan)

Recipient of the Helen Cowan Book Award, Spring 2014 (Ohio State University)

Recipient of Scarlet & Gray Grant and Maximus Scholarship, 2013 – 2017 (Ohio State University)

RELEVANT COURSES

Mental Health Policy in The United States Fall 2019

Methods in Educational Research: Qualitative Winter 2020

Design Based Research Methods Fall 2020

Transitions to Adulthood in Developmental and Ecological Context Fall 2020

Foundations of Engineering Education Research Fall 2018

Frameworks in Engineering Education Research Fall 2019

Special Topics in Engineering Education Research Fall 2020

Introduction to Quantitative Methods in Educational Research Fall 2018

Psychometric Theory Fall 2019; Fall 2020

Research Seminar Science, Technology, and Public Policy Winter 2020