

EUNSIL LEE

Assistant Professor

Department of Engineering Education

WORK ADDRESS

140M Capen Hall

University at Buffalo

Buffalo, New York 14260

(716) 645-0250

eunsille@buffalo.edu

EDUCATION

Ph.D., Engineering Education, Arizona State University August, 2020

Dissertation: Re-thinking sense of belonging in engineering doctoral education:

Considering diversity in students' citizenship

Advisors: Drs. Jennifer Bekki & Adam Carberry (Co-advisors)

Ph.D. Student, Polymer and Fiber Science, North Carolina State University July, 2016

M.S., Nano-/Bio-materials in Textiles, Yonsei University (Seoul, Korea) February, 2014

Thesis: Fabrication of lignin nanofibers and evaluation of the antimicrobial property and biodegradability

Advisor: Dr. Seungsin Lee

B.S., Clothing and Textiles, Yonsei University (Seoul, Korea) February, 2009

PROFESSIONAL EXPERIENCE

Assistant Professor, Dept. of Engineering Education August 2022 – Present
University at Buffalo, Buffalo, NY

Visiting Assistant Professor, Dept. of Engineering Education. August 2021 – May 2022
Virginia Tech, Blacksburg, VA

Postdoctoral Associate, Sch. of Universal Computing, Construction, and Engineering Education August 2020 – July 2021
Florida International University, Miami, FL

Research Associate, Korea Institute of Science and Technology March 2014 – May 2015
Wanju, Korea

ADDITIONAL TRAINING AND CREDENTIALS

ASEE Minority Mentorship Program	Oct 2023 – Sep 2024
American Society for Engineering Education	
Modern Meta-Analysis Research Institute	June 12 – 16, 2023
American Institute of Research & Georgia State University (Supported by NSF)	
Inclusive STEM Teaching	October 2021
Inclusive STEM Teaching Project, Northwestern University	
New Faculty Course Design Workshop	April 2021
Center for the Advancement of Teaching, Florida International University	
Preparing Future Faculty and Scholars (PFx) Program	December 2019
Arizona State University Graduate College	

HONORS AND AWARDS

G. Burke Johnston Award for Excellence in Teaching, <i>OAK</i> at Virginia Tech	May 2022
The Polytechnique School Block Grant, Arizona State University	January 2019
Graduate Fellowship, North Carolina State University	August 2015
Full Scholarship for the Best Graduate Student, Yonsei University	March 2012
University Honors Scholarship, Yonsei University	September 2008
Best Student of the Year Award, Yonsei University	December 2005

GRANTS AND CONTRACTS

Current Funding

1. Understanding contributing factors to sense of belonging for engineering graduate students at University at Buffalo: A comparison of master's and doctoral students and domestic and international Students." PI: **Eunsil Lee**, 07/01/2023-06/30/2024, Universtiy at Buffalo - Justice, Equity, Diversity, and Inclusion (JEDI) Research Micorgrant, Eunsil Lee's share: \$10,000.

Pending Funding

1. Collaborative Research: Synthesizing Sense of Belonging in STEM Higher Education (Under-review). **PI: Eunsil Lee**, Co-PI: Dr. 2. Hsien-Yuan Hsu (Associate Professor in the School of Education at University of Massachusetts, Lowell), 08/01/2024-07/31/2027, Directorate for STEM Education (EDU); Core (ECR) Level 1 Research Area I STEM Learning and Learning Environment, Eunsil Lee's share: \$236,138
2. Collaborative Research: International Engineering Graduate Students in U.S. Higher Education: A Longitudinal Exploration of Cross-Cultural Adaptation and Sense of Belonging (Under-review). **PI: Eunsil Lee**, Co-PIs: Dr. Susan Sajadi (Assistant Professor in the Department of Engineering Education at Virginia Tech), 01/01/2025-

12/31/2027, National Science Foundation (NSF) EDU; Core (ECR) Level 1 Research Area III Workforce Development, Eunsil Lee's share: \$310,869.

Funding In-Preparation

1. Collaborative Research: Sense of Belonging Among Faculty in Engineering (In-preparation). **PI: Eunsil Lee**, Co-PIs: Drs. Jessica Deter (at University of Nebraska-Lincoln) and Susan Sajadi (at Virginia Tech), 08/01/2025-07/31/2028, NSF Broadening Participation (BPE) Level 1 (expected to submit by Feb. 2024), Eunsil Lee's share: TBD.
2. BICSER: Psychosocial Instruments to Measure Student Sense of Belonging in STEM Higher Education: A Meta-Analytical Comparison (In-Preparation). **PI: Eunsil Lee**, 01/01/2025-12/31/2027, NSF EDU; Core (ECR) (expected to submit by Feb. 2024), Eunsil Lee's share: TBD.

PUBLICATIONS AND TECHNICAL PRESENTATIONS

[Google Scholar](#): h-index 6, i-index 4

[ORCID](https://orcid.org/0000-0002-1200-2412): <https://orcid.org/0000-0002-1200-2412>

Book Chapters

Accepted for Publication

1. Lee, W. L., London, J. S., Masters, A. S., Holloman, T. K., Knight, D. B., and Lee, E. (Under-review). Promoting a culture of inclusion in graduate engineering education: A case study. In J. D. Adams and G. L. Cochran (Eds), *Handbook on Equity-Oriented, Discipline-Based STEM Education Research* (pp. TBD). Springer Nature.

Refereed Journal Articles (* denotes graduate students, + denotes undergraduate student)

Published

1. Kouo, J. L., Dala, M., **Lee, E.**, Berhane, B., Emiola, O., Ladeji-Osais, K., Reid, K., Beauchamp, C., Carberry, A., Klein-Gardner, S. (2023). Investigation of Effective Teacher Professional Development among Experienced Non-Experienced Engineering Educators. *Journal of Pre-College Engineering Education Research*.
2. London, J., Carberry, A., Ayela-Uwangu, A., **Lee, E.**, Huerta, M. Abhyankar, R., Huang, W., Yasuhara, K., Allendoerfer, C., & Cruz, S. N. (2021). The pioneers' stories as a tool for introducing graduate students to the engineering education research community. *Advances in Engineering Education*.
3. **Lee, E.**, Song, Y., & Lee, S. (2019). Crosslinking of lignin/poly (vinyl alcohol) nanocomposite fiber webs and their antimicrobial and ultraviolet-protective properties. *Textile Research Journal*, 89(1), 3-12.

4. **Lee, E.**, Carberry, A., Atwood, S., Deifes-Dux, H., & Siniawski, M. (2018). Faculty perceptions before and after implementation of standards-based grading. *Australasian Journal of Engineering Education*. 23(2), 1-9.
5. **Lee, E.** Kim, Y. O., Ha, Y. M., Lim, D., Hwang, J. Y., Kim, J., Park, M., Cho, J. H., & Jung, Y. C. (2018). Antimicrobial properties of lignin-decorated thin multi-walled carbon nanotubes in poly (vinyl alcohol) nanocomposites. *European Polymer Journal*, 105(2018), 79-84.
6. Song, Y., **Lee, E.**, & Lee, S. (2017). Water absorption properties and biodegradability of lignin/PVA nanofibrous webs. *Journal of the Korean Society of Clothing and Textiles*, 41(3), 1-10.
7. **Lee, E.**, & Lee, S. (2014) Fabrication of lignin nanofibers using electrospinning. *Journal of the Korean Society of Clothing and Textiles*, 38(3), 375-385.

Under Review & In-Preparation

1. **Lee, E.**, Bekki, J., & Carberry, A. (Under-review). Comparative analysis on the predictors of sense of belonging between international and domestic engineering doctoral students: The interplay of interpersonal interaction with faculty, peers, and staff. *Journal of Engineering Education*.
2. **Lee, E.**, Bekki, J., Carberry, A., & Kellam, N. (Under-review). Understanding international engineering doctoral students' sense of belonging through their interpersonal interactions in the academic community. *Studies in Engineering Education*.
3. Berhane, B., Buenaflor, S. H., & **Lee, E.**, (Under-review). An empirically-based call to action for institutionalizing support for prospective black engineering transfers enrolled in community colleges. *Journal of Engineering Education*.
4. Owgo, A., Berhane, B., & **Lee, E.** (Under-review). Still in the process to Learn": The role of immigrant and racial identity in the adjustment experiences of Black immigrant engineering students in the transfer process. Journal of engineering education. *Journal of Engineering Education*.
5. **Lee, E.**, Dala, M., Carberry, A., & Miller, M. (In-preparation). Sources of engineering self-efficacy among high school students: Understanding the influence of curriculum. Journal of Engineering Education.

Conference Proceedings (presenter name underlined, *graduate student, +undergraduate student)

1. **Lee, E.**, Lawrence, U. C.* (Submitted). *Sense of belonging in STEM higher education: Preliminary results from a scoping literature review*. American Society for Engineering Education Annual Conference, 2024.
2. **Lee, E.**, Sajadi, S., & Lee, W. (2023). *Engineering graduate students' perceptions of challenges and stressors: A comparison of master's vs. doctoral students and domestic vs. international students*. American Society for Engineering Education Annual Conference 2023, Baltimore, Maryland, June 25-28.
3. Clæsson, H.+, Hodge, R.+ Benning, J., **Lee, E.** & Gray, D., (2021). *Exploring the impact*

of virtual collaboration environments (VCE) on students' confidence in teamwork in a first-year engineering design course. American Society for Engineering Education Annual Conference 2022, Minneapolis, Minnesota, June 26-29.

4. **Lee, E.**, Carberry, A., Dalal, M., & Miller, M. (2021). *Exploring the validity of the engineering design self-efficacy scale for secondary school students.* American Society for Engineering Education Annual Conference, Virtual, June 27-30.
5. **Bond, M. B. ***, **Lee, E.**, & Berhane, B. (2021). *Exploring the impact of high school engineering exposure on science interests (Work in Progress).* American Society for Engineering Education Annual Conference, Virtual, June 27-30.
6. **Kitter, J.**, **Lee, E.**, Brunhaver, S., & Bekki, J. (2021). *Examining the Impact of Interpersonal Interactions on Course-Level Persistence Intentions Among Online Undergraduate Engineering Students.* American Society for Engineering Education Annual Conference, Virtual, July 26-29.
7. **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, Virtual, January 25-28.
8. **Lee, E.**, & Brunhaver, S., & Bekki, J. (2020). *Developing an Instrument to Measure Online Engineering Undergraduate Students' Learning Experiences and Intentions to Persist.* American Society for Engineering Education Annual Conference, Virtual, June 22-26.
9. **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.* American Society for Engineering Education Annual Conference, Tampa, Florida, USA, June 15-19.
10. **Lee, E.**, Bekki, J., Carberry, A., & Kellam, N. (2019). *Understanding international engineering doctoral students' sense of belonging through their interpersonal interactions in the academic community.* Collaborative Network for Engineering and Computing Diversity, Crystal City, VA, USA, April 14-17.
11. **Lee, E.**, Carberry, A., Atwood, S., Deifes-Dux, H., & Siniawski, M. (2017). *Faculty perceptions before and after implementation of standards-based grading.* Research in Engineering Education Symposium, Bogota, Columbia, July 6-8.

Conference Presentations without Proceedings (presenter name underlined, *graduate student, +undergraduate student)

1. **Lee, E.**, Bekki, J., Carberry, A., & Kellam, N. (2020). *Re-thinking sense of belonging in engineering doctoral education: Considering diversity in students' citizenship.* Korean Society for Engineering Education, Virtual Conference, September 16-17.
- * Selected for the best presentation award.
2. **Lee, E.**, Carberry, A., Diefes-Dux, H., Atwood, S., & Siniawski, M. (2019). *Faculty perception before, during, and after implementation of Standards-based Grading.* Korean

Society for Engineering Education, Jeju, Korea, September 19-20.

* Selected for the best presentation award.

3. **Lee, E.**, Bekki, J., Carberry, A., & Kellam, N. (2019). *Re-thinking engineering doctoral students' sense of belonging: In consideration of diversity in citizenship and interpersonal interactions*. American Society for Engineering Education Annual Conference, Tampa, Florida, USA, June 15-19.
4. **Lee, E.** (2017). *STEM doctoral students' sense of belonging*. Diversity and Inclusion Sciences Graduate Research Conference, Tempe, AZ, February 1-2.
5. **Lee, E.** (2017) *Understanding unique challenges and supports of international doctoral engineering students*. American Society of Engineering Education Conference Pacific South West Section, Tempe, AZ, April 20-22.
6. **Song, Y., Lee, E.**, and Lee, S. (2015). *Wettability and water absorption properties of lignin nanofibrous membranes*. Fiber Society Conference, Shanghai, China, May 24-27.
7. **Lee, E.**, Lee, H., and Jung, Y. C. (2015) *Evaluation of mechanical and antimicrobial properties of lignin nanofibers insolubilized by plasma treatment*. Korean Fiber Society Conference, Seoul, Korea, April 23-24.
8. **Lee, E.**, Lee, H., and Jung, Y. C. (2015). *Insolubilization of lignin nanofibers using plasma treatment*. the Korean Polymer Society conference, Daejun, Korea, April 8-10.
9. **Lee, E.**, & Jung, Y. C. (2014). *Enhanced mechanical and antimicrobial properties of multiwalled carbon nanotubes incorporated lignin nanofibers*. Korean Polymer Society Conference, Jeju, Korea, October 6-8.
10. **Lee, E.**, Song, Y., and Lee, S. (2014). *Antimicrobial property and biodegradability of lignin nanofibers*. the 2014 World Congress on Advances in Civil, Environmental, and Materials Research, Busan, Korea, August 24-28.
11. **Lee, E.**, Jung, Y. C., and Lee, S. (2014). *Fabrication and insolubilization of lignin nanofibers*. Korean Fiber Society Conference, Daejun, Korea, May 8-9.

Invited Talks

1. "Re-thinking sense of belonging in engineering education", Seminar Series in the School of Education, University of Massachusetts, Lowell. Spring 2024 (Scheduled).
2. "New Faculty Poster Session", The engineering faculty organization (EFO) conference at Virginia Tech. 2021.
3. "Re-thinking engineering doctoral students' sense of belonging", STEM Transformation Institute Research Meeting at Florida International University, 2021.
4. "Professional Development Seminar: Postdoctoral Researcher", EGN 6957. Professional Development Seminar at Florida International University, 2020.
5. "Exploring engineering education research.", InSciEdOut Weekly Meeting at Arizona State University. 2017.
6. "Learning from my research experiences in the Engineering Education and Systems and Design (EESD) program." EESD Bi-Weekly Seminar at Arizona State University. 2017.

GRADUATE STUDENTS

Dissertation/Thesis Committee Member

1. Dr. Hannah Gilsson, Dept. of Engineering Education at Virginia Tech, Ph.D., Graduated Sep 2023.
 - a. Dissertation title: *The Dynamics of Belonging Among Undergraduate Women in Engineering*
 - b. Chair: Dr. David Knight & Committee members: Drs. Holly Matusovich, Jeremy London, and myself
2. PhD Candidate Duncan Mullis, Dept. of Engineering Education at University at Buffalo
 - a. Dissertation title: *A Phenomenological Examination of Pre-Service Faculty Learning and Effective Teaching within Engineering*
 - b. Chair: Dr. Jessica Swenson & Committee Members: Dr. Ashlee Versypt and myself
3. PhD Student Himani Sharma, Engineering Education PhD Program at Arizona State University
 - a. Dissertation topic: *Multicultural Interactions in the Advising Relationship for International Engineering Graduate Students*
 - b. Chair: Dr. Ann Mckenna & Committee Members: Drs. Jennifer Bekki, Samantha Brunhaver, and myself
4. PhD Candidate Morgan Fong, Dept. of Computer Science at University of Illinois Urbana-Champaign
 - a. Dissertation topic: *Sense of belonging in the Project Based Learning Context for Undergraduate Computer Science Students (NSF GRFP)*
 - b. Chair: Dr. Geoffrey Herman & Committee formation in-progress

PROFESSIONAL ACTIVITIES

Reviewer

NSF Directorate for STEM Education (EDU)	Applied
Journal of Engineering Education	2021 – Present
Studies in Engineering Education	2021 – Present
American Society for Engineering Education	2019 – Present

Membership in Professional and Honor Societies

Member of Korean Society for Engineering Education.	2019 – Present
Member of American Society for Engineering Education	2016 – Present
Member of National Science & Technology Information Service, Ministry of Science, ICT & Future Planning, (Scientist registration number: 1135-3154), Korea	2014 – Present

Member of Korea Institute of Science and Technology	2014 – Present
Member of Korean Polymer Society	2014 – Present
Member of Korean Fiber Society	2014 – Present
Member of Korean Society of Clothing and Textiles	2013 – Present

SERVICE & OUTREACH ACTIVITIES

Department of Engineering Education (DEE) Graduate Admission Committee	2022-Present
Department of Engineering Education (DEE) Speaker Series Committee	2022 - 2023
University Liaison, Engineering 4 USA (E4USA), Buchanan, VA	2021 – 2022
University Liaison, Engineering 4 USA (E4USA), Miami, FL	2020 – 2021
Student Representative, ASU EESD recruitment trip to Olin College, Boston, MA	2017
Volunteer, Dream Start Movement at Korea Ministry of Education, Seoul, Korea	2012

TEACHING AND COURSES TAUGHT

University at Buffalo, Buffalo, NY

ENS 493 Senior Capstone Design I (Fall 2023, 9 students)

- : Guided and assessed student teams' engineering design project developments
- : Collaboratively improved course materials with the instructor of ENS 494 Senior Capstone Design II (2nd sequence) to incorporate human-centered design perspectives and skills (e.g., non-technical implications, stakeholders, power in decision making, teamwork, etc.), drawing from the previous experiences teaching engineering design courses at different institutions

DEE 599 Teaching Practicum (Spring 2023, 1 student)

- : Mentored the student in developing a lesson plan, learning objectives, assignments, assessment plan, and aligning them for three classes in DEE 502 (See below)
- : Supported the student in teaching those three classes, observed the student's teaching, provided written feedback from my observations, and conducted reflection sessions

DEE 502 Equity and Inclusion in Engineering Education (Spring 2023, 20 students)

- : Facilitated awareness of diversity, equity, and inclusion issues in engineering education among master's students in traditional engineering disciplines by thoughtfully selecting and integrating course materials considering their existing knowledge and preconceptions of the subject matter
- : Enhanced the course by integrating additional resources obtained through research and collaboration with instructors from diverse institutions offering similar courses

Virginia Tech, Blacksburg, VA

ENGE 1215: Foundations of Engineering I (Fall 2021, 72 students per section/3 sections)

ENGE 1215: Foundations of Engineering II (Spring 2022, 72 students per section/3 sections)
: Designed and prepared course materials on engineering design, mathematical modeling, and professional development, and learning activities to cultivate sense of belonging
: Managed a team of two graduate and one undergraduate teaching assistants
: Attached an official teaching evaluation feedback

Arizona State University, Mesa, AZ

EGR 201: Use-Inspired Design Project I (Fall 2018, 24 students)
: Collaboratively prepared course curriculum and materials (e.g., syllabus, slides, assignments, etc.) in a co-instructor team and handled administrative duties
: Collaborated and communicated with the ASU Preparatory STEM Academy teachers to organize the final project and setup a showcase to present student teams' final prototypes
: Received an 'Overall evaluation of the course and instructor' rating of 4.36 out of 5.00

PATENTS, COPYRIGHTS, AND TRADEMARKS

1. Lignin-containing coating composition and ultrafine fibers including the same/ KR 20160050851A (2014)/ CN 105566929A (2015)/ US 10,066,125,B2 (2017)
2. Lignin microcapsule and method of producing the same/ US 9,549,952,B2 (2017)
3. Color tunable light emitting diode using the poly-dopamine functionalized ZnO-Graphene core shell nanoparticle and its fabrication process/ KS 101,726,401,B1 (2017)
4. Methods of producing insolubilized PVA-Lignin composite materials using plasma/heat treatments and PVA-Lignin composite produced thereby/ KR 101,604,435,B1 (2016)
5. Fabrication method for water-insoluble lignin nanofibrous membrane/ KR 20,160,029,905,A (2016).
6. Microcapsule having self-healing and conducting property, self-healing fiber and method for preparing the same/ KR 101,801,790,B1 (2015)

MEDIA COVERAGE

1. [ASU NOW article on the Engineering Education PhD program](#) October, 2017