Olivia Ryan

(she/her)
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Education

Ph.D. – Engineering Education Anticipated May 2026
Virginia Polytechnic Institute and State University (VT) *Advisor: Dr. Susan Sajadi*
Focus: Exploring mathematics curriculum barriers in engineering

M.S. – Engineering Mechanics Anticipated May 2025
Virginia Polytechnic Institute and State University (VT) *Advisor: Dr. David Dillard*
Focus: Improving homework feedback system for mechanics education

B.S. – Engineering May 2020
Roger Williams University (RWU) *summa cum laude*
Specialization: Electrical Engineering
Minor: Mathematics

Research Experience

VT Department of Engineering Education Aug. 2022 – Present
Graduate Research Assistant

- Working with a multi-institutional research team to develop and validate a survey instrument for dissemination across multiple engineering courses
- Collaborating with colleagues on multiple research projects, conducting data analysis and contributing to the dissemination of findings through conference presentations and peer-reviewed journal publications
- Analyzed data from over 300 student reflections to identify trends and insights
- Wrote code that automates the data cleaning process for an AI-focused research project
- Designed a protocol and conducted interviews with 15 first-year engineering students about their math experiences
- Facilitated 10 focus groups with first-year engineering students about conflict and psychological safety
- Developed and delivered a conflict management workshop presented to multiple engineering classes and engineering instructors

VT Department of Engineering Education and Engineering Mechanics Aug. 2023 – May 2024
Graduate Research Assistant

- Developed code to integrate into an online homework system that enables personalized feedback for students in Mechanics of Materials
- Improved the functionality and efficiency of the homework submission system for the pilot semester
- Developed a survey and facilitated focus groups to gather student feedback on the use and effectiveness of an open-source textbook

Brown University Mittleman Lab Aug. 2020 – May 2021
Graduate Research Assistant

- Revisited a prior experiment on a Terahertz metamaterial, working to replicate and validate the original results

RWU School of Engineering Sept. 2018 – March 2020
Undergraduate Research Assistant

- Collaborated with a mechanical engineering faculty member to teach 240 local elementary school students about wind energy through engaging, hands-on activities

- Developed educational materials to effectively communicate electrical engineering concepts to non-expert audiences

Bioinspired Robotics (NSF REU) June 2019 – Aug. 2019

Undergraduate Research Assistant

- Validated the novel properties of the Luneburg lenses by comparing experimental outcomes with simulation results
- Designed and implemented a durable system to hold the Luneburg lens during experiments

Journal Publications

1. Drinkwater, K., **Ryan, O.,** Sajadi, S., Katz, A., & Huerta, M. (Major Revisions). Expanding Possibilities for Qualitative Analysis: Using Generative AI to Apply a Feedback Quality Rubric. *Journal of Engineering Education*
2. **Ryan, O.**, Fisher, M., Schibelius, L., Huerta, M., Sajadi, S., & Drinkwater, K. (In Press). A Scenario-Based Approach: Helping Engineering Students Manage Conflict. *Advances in Engineering Education*
3. **Ryan, O.,** Sajadi, S., Barrera, S., & Tavakoli Jaghargh, R. (2025). Understanding the Effects of a Math Placement Exam on Calculus 1 Enrollment and Engineering Persistence. *Education Sciences, 15(2)*
4. Sajadi, S., Huerta, M., **Ryan, O.,** & Drinkwater, K. (2024). Harnessing Generative AI to Enhance Feedback Quality in Peer Evaluations within Project-Based Learning Contexts. *International Journal of Engineering Education, 40(5), 998-1012*
5. Huerta, M., Sajadi, S., Schibelius, L., **Ryan, O.,** & Fisher, M. (2024). An Exploration of Psychological Safety and Conflict in First-Year Engineering Student Teams. *Journal of Engineering Education, 113(3), 635-666*
6. Guerboukha, H., Shrestha, R., Neronha, J., **Ryan, O.,** Hornbuckle, M., Fang, Z., & Mittleman, M. (2020) Efficient Leaky-Wave Antennas at Terahertz Frequencies Generating Highly Directional Beams. *Applied Physics Letters 117 (26)*
7. Zhao, L., Laredo, E., **Ryan, O**., Yazdkhasti, A., Kim, H-T., Ganye, R., Horiuchi, T., & Yu, M. (2020). Ultrasound Beam Steering with Flattened Acoustic Metamaterial Luneburg Lens. *Applied Physics Letters, 116 (7)*

Peer-Reviewed Conference Papers and Proceedings

1. Sajadi, S., **Ryan, O**., & Drinkwater, K. (2025, February). Barriers in the Workplace: An Analysis of Engineering Workplace Culture and Climate. *2025 Collaborative Network for Engineering & Computing Diversity (CoNECD), San Antonio, TX*
2. Gray, D., **Ryan, O.**, Newcomer, J. & Taimoory, H. (2024, July). Impact of Math Placement on Persistence and Time to Graduation in Engineering. *First-Year Engineering Experience (FYEE) Conference, Boston, MA*
3. **Ryan, O.**, & Sajadi, S. (2024, June). Understanding Students in Times of Transition: The Impact of the COVID-19 Pandemic on Engineering Students Math Readiness and Transition into Engineering. *American Society of Engineering Education (ASEE) Conference, Portland, OR*
4. **Ryan, O.**, & Benitz, M. (2024, June). Evaluating Fourth-Grader's Perception of Engineering Through a Community-Engaged Project. *American Society of Engineering Education (ASEE) Conference, Portland, OR*
5. Drinkwater, K., **Ryan, O.**, Fisher, M., Sajadi, S., & Huerta, M. (2024, June). Improving Peer Feedback in Project-Based Learning Contexts: An Investigation into a First-Year Engineering Intervention. *American Society of Engineering Education (ASEE) Conference, Portland, OR*
6. **Ryan, O.**, & Sajadi, S. (2024, February). Beyond Math Readiness: Understanding Why Some Women Pursue Engineering. *2024 Collaborative Network for Engineering & Computing Diversity (CoNECD), Arlington, VA*
7. Sajadi, S., **Ryan, O.**, Schibelius, L., & Huerta, M. (2023, October). WIP: Using Generative AI to Assist in Individual Performance Feedback for Engineering Student Teams. *2023 IEEE Frontiers in Education Conference (FIE), College Station, TX*
8. Schibelius, L., **Ryan, O.**, & Sajadi, S. (2023, October). Student perceptions of teamwork, conflict, and industry preparedness in engineering interdisciplinary capstone design. *2023 IEEE Frontiers in Education Conference (FIE), College Station, TX*

9. **Ryan, O.**, Fisher, M., Schibelius, L., Huerta, M., & Sajadi, S. (2023, June). Using a scenario-based learning approach with instructional technology to teach conflict management to engineering students*. American Society of Engineering Education (ASEE) Conference, Baltimore, MD*

Conference Poster and Workshop Presentations

1. Huerta, M., Sajadi, S., **Ryan, O.**, Fisher, M., & Schibelius, L. (2023, June). Dysfunctional Teams, Functional Teaching Approaches: Implementing Conflict Management Training in the Classroom for Engineering Teams. *Workshop at American Society of Engineering Education (ASEE) Conference, Baltimore, MD*
   - **Attracted the attention of over 60 attendees**
2. **Ryan, O.**, Levesque, H., Harkins, M., Hysong, N., & Gallagher, P. (2020, October). Improving Children's Bicycle Safety Through the Use of 'Smart' Technology*. Poster at American Society of Engineering Education (ASEE) Northeast Section Conference, Bridgeport, CT*
   - **First place in the student poster competition**
3. Dunn, B., & **Ryan, O.** (2019, November). Educating Fourth Graders on Winder Energy and Engineering Design. *Poster at National Collegiate Honors Council Conference, New Orleans, LA*
4. DelSanto, A., Phetteplace, E., & **Ryan, O.** (2017, September). Drinking Water Project in Anconcito, Ecuador. *Poster at Northeast Graduate Student Water Symposium, Amherst, MA*

Teaching Experience

VT Rising Sophomore Abroad Program Spring 2024

Co-Instructor for Australia and New Zealand Track

- Developed and delivered lecture materials for recitation sessions, engaging 29 undergraduate students in a course on global engineering
- Coordinated and led a study abroad experience, managing student travel and learning activities in Australia and New Zealand

VT Rising Sophomore Abroad Program Spring 2023

Co-Instructor for UK & Ireland Track

- Developed and delivered lecture materials for recitation sessions, engaging 22 undergraduate students in a course on global engineering
- Coordinated and led a study abroad experience, managing student travel and learning activities in the UK and Ireland

Schuler Scholar Program Nov. 2021 – July 2022

STEM Program Associate

- Provided supplemental math and science education to students at 4 different Chicago Public Schools
- Assessed students' algebra proficiency, identified learning gaps, and developed a targeted curriculum to address those gaps
- Created STEM resources to support student learning and assist colleagues

RWU Tutoring Center Aug. 2016 – May 2020

Math Peer Tutor

- Hosted tutoring sessions to review homework, clarify concepts, and provide support across multiple math courses
- Continued assisting students virtually during the spring of 2020 to ensure uninterrupted learning

Guest Lectures

1. **Ryan, O.** (January 2025). Department Community Building Trivia Event. *In VT Engineering Education Seminar.*
2. Fisher, M. & **Ryan, O.** (March 2024). A Conflict Management Workshop for Student Teams. *In VT Rising Sophomore Abroad Program.*
3. Fisher, M. & **Ryan, O.** (March 2023). A Conflict Management Workshop for Student Teams. *In VT Rising Sophomore Abroad Program.*

4. Huerta, M., Sajadi, S., **Ryan, O.**, & Fisher, M. (October 2022). A Conflict Management Workshop for Student Teams. *In VT CREATE Ideation for Innovation Course.*
5. Huerta, M., Sajadi, S., **Ryan, O.**, & Fisher, M. (September 2022). A Conflict Management Workshop for Student Teams. *In VT Interdisciplinary Capstone Course.*
6. Huerta, M., Sajadi, S., **Ryan, O.**, & Fisher, M. (September 2022). A Conflict Management Workshop for Student Teams. *In VT Foundations of Engineering Course.*

Other Work Experience

Sargent & Lundy June 2021 – Oct. 2021
Associate I

RWU Department of Resident Life and Housing Aug. 2019 – May 2020
Resident Assistant

ComEd – An Exelon Company June 2018 – Aug 2018
Intern – Voltage Optimization (VO) Team

Academic Achievements and Awards

1. VT Graduate Research Development Program Funding — Spring 2025
2. VT Pratt Fellowship — Fall 2024
3. VT Pratt Fellowship — Fall 2022 – Spring 2023
4. SWE Women in Engineering: A Review of the 2022 Literature — Fall 2022
   Silver Award for American Society of Business Publication Editors Upper Midwest Region
5. Brown University Graduate School Fellowship — Fall 2020 – Spring 2021
6. RWU Top Engineering Graduate — May 2020
7. RWU Presidential Core Values Medallion — May 2020
8. RWU Honors Program Graduate — May 2020
9. Henderson Outstanding Math Tutor Award — May 2020
10. RWU Robotics Award Co-Recipient — May 2020
11. RWU Presidential Scholar — Fall 2016 – Spring 2020
12. RWU Corporate Scholar — Fall 2018 – Spring 2020
13. RWU Dean's List — Fall 2016 – Spring 2020
14. Harold G. Way Scholarship Award Recipient — May 2019

Academic and Professional Service

1. ASEE Student Division, Co-Best Paper Chair — July 2024 – June 2025
2. ASEE ERM Division, Best Paper Committee — Spring 2025
3. RWU Technical Design Review, Engineering Education Panel Member — Spring 2025
4. VT Engineering Education, Graduate Representative — Fall 2024 – Spring 2025
5. VT Engineering Education, Student Ambassador — Fall 2023 – Spring 2024
6. RWU Engineers Without Borders (EWB), President; Secretary — Spring 2017 – Spring 2019
7. RWU Electrical Engineering Club (IEEE), President — Fall 2017 – Fall 2019
8. RWU School of Engineering (SECCM), Student Ambassador — Fall 2017 – Spring 2020

Certifications

NCEES Engineer in Training (EIT) – *Illinois* — May 2021

Professional Affiliations

- American Society of Engineering Education (ASEE)
- Society of Women Engineers (SWE)