

# Julia Simon

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## EDUCATION

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**PhD** Yale University, New Haven, CT Expected 2027  
Chemical and Environmental Engineering

**B.S.H.** Stanford University, Stanford, CA June 2022  
Chemical Engineering with Honors  
GPA: 3.80/4.00  
Honors Thesis: “Evaluating Membrane Performance in Electrochemical Stripping Reactor for Nitrogen Removal”

## HONORS AND GRANTS

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**NSF Graduate Research Fellowship** – National Science Foundation (2022)

**Dean’s Emerging Scholars Fellowship** – Yale Graduate School of Arts and Sciences (2022): awarded to incoming Ph.D. students exhibiting outstanding academic promise and achievement

**Mason/Marsden Prize in Chemical Engineering** – Department of Chemical Engineering, Stanford University (2022): awarded for outstanding Chemical Engineering student who has been involved in significant research

**Mason/Marsden Prize in Chemical Engineering** – Department of Chemical Engineering, Stanford University (2022): awarded for outstanding Chemical Engineering student who has been involved in significant research

**Stanford University AIChE Student Chapter Distinguished Service Award** – Department of Chemical Engineering, Stanford University (2022): awarded to seniors who have made significant contributions to the Stanford University AIChE chapter

**Cap and Gown Leader Award** – Cap and Gown, Stanford University (2022): awarded to outstanding student leaders at Stanford who support women’s leadership and demonstrate academic excellence and community service

**Major Grant for Chemical Engineering Research** – Vice Provost of Undergraduate Education, Stanford University (2021): awarded in support of full-time research towards an undergraduate honors’ thesis in the Department of Chemical Engineering

**Channing Robertson Outstanding Junior Award** – Department of Chemical Engineering, Stanford University (2021): awarded to an outstanding junior majoring in Chemical Engineering

**Mel Lane Student Grant** – Woods Institute for the Environment, Stanford University (2020): awarded in support of the planning and execution of “Diversity in Environmental Careers,” a professional development conference for underrepresented minorities interested in environmental fields

## RESEARCH & LAB EXPERIENCE

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### **Winter Lab, Yale University**

August 2022 – present

Advisor: Lea Winter

- Project Description: Couple nonthermal plasmas of common waste carbon compounds and variable electrolytes in an electrochemical cell and experimentally observe formation of valuable products between plasma-activated carbon feedstocks and electrolyte

### **Tarpeh Lab, Stanford University**

August 2019 – June 2022

Advisor: William Tarpeh

- Project 1 Description: Designed and executed an honors research project investigating reactor design opportunities to improve the performance of electrochemical stripping for wastewater and surface water nitrogen sensing
- Project 2 Description: Compiled and categorized performance data of novel nutrient removal and recovery technologies based on performance and technology readiness levels, leading to publication of peer-reviewed research article and industry report

### **Darwin Group, Massachusetts Institute of Technology**

June – August 2020

Advisor: Mick Follows

- Project Description: Developed chemical models to describe the metabolic demands of *Riftia pachyptila* and its endosymbiotic bacteria and synthesized past findings on tubeworm productivity by producing differential equations to describe the tubeworm’s growth rate and conditions that affect it

### **Codiga Resource Recovery Center, Stanford University**

October 2018 – June 2022

Advisor: Sebastien Tilmans and Felipe Chen

- Project Description: Supported campus research efforts around novel wastewater treatment technologies by monitoring plant operations, conducting maintenance on the plant systems (e.g., sensors, pumps, valves, and process tanks), troubleshooting operations problems, and designing and implementing plant improvement

## TEACHING EXPERIENCE

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### Teaching Fellow

Fall 2023

Transport Phenomena I, Yale University

- Held office hours and weekly problem-solving sessions to support 20 Chemical Engineering undergraduates to teach problem-solving approaches to fluid mechanics problems

### Undergraduate Teaching Assistant

Winter 2021

Introduction to Chemical Engineering, Stanford University

- Held weekly office hours to support 20 new Chemical Engineering undergraduates gain a deeper understanding of chemical engineering concepts and guided students through solving problem sets in discussion sections

## PUBLICATIONS

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Kogler, A.; Farmer, M.; **Simon, J. A.**; Tilmans, S.; Wells, G. F.; Tarpeh, W. A. Systematic Evaluation of Emerging Wastewater Nutrient Removal and Recovery Technologies to Inform Practice and Advance Resource Efficiency. *ACS EST Eng.* **2021**, *1* (4), 662–684.

<https://doi.org/10.1021/acsestengg.0c00253>.

Kogler A, Farmer M, **Simon J. A.**, Shao X, Cheng Z, Tilmans S, Wells G, Tarpeh WA (2021) *Characterizing, Categorizing, and Communicating Next-Generation Nutrient Removal Processes for Resource Efficiency*. Water Research Foundation.

## PRESENTATIONS

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### Oral

- **Yale Center for Natural Carbon Capture Research Showcase**, “Designing Plasma-Electrochemical System for Carbon Upgrading,” (Awarded Best Graduate Student Talk) October 2023, New Haven, CT.
- **MIT Summer Research Program Student Presentation Symposium**, “Modeling the Metabolic Demands of *Riftia Pachyptila*,” July 2020, Virtual.

### Poster

- **2023 Association of Environmental Engineering and Science Professors (AEESP) Research and Education Conference**, “Evaluating Membrane Performance in Electrochemical Stripping for Nitrogen Recovery,” June 2023, Boston, MA.
- **Mason Lecture Poster Session**, “Evaluating Membrane Performance in Electrochemical Stripping for Nitrogen Recovery,” April 2022, Stanford, CA.
- **Stanford University Symposium of Undergraduate Research and Public Service**, “Optimizing Electrochemical Stripping for Wastewater Treatment and Sensing Applications,” October 2021, Stanford, CA.

- **Future Leaders of Chemical Engineering**, “Optimizing Electrochemical Stripping for Wastewater Treatment and Sensing Applications,” (Awarded Best Lightning Talk). October 2021, Raleigh, NC.

## **PROFESSIONAL AFFILIATIONS & SERVICE**

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### **Robert M. Langer Symposium Planning Committee (2023)**

Position: Member

- Helped to plan Yale Chemical and Environmental Engineering’s 20<sup>th</sup> annual research symposium to share ongoing graduate research happening in the department

### **Stanford Chemical Engineering Diversity and Inclusion Committee (2020 – 2022)**

Position: Undergraduate Representative

- Served as the undergraduate representative to contribute to efforts to support students from underrepresented backgrounds within the Chemical Engineering department

### **American Institute of Chemical Engineers (2020 – 2022)**

Position: Co-Vice President of Community Engagement (2021- 2022)

- Coordinated events to strengthen the undergraduate community and support academic and professional success within Stanford’s Chemical Engineering Department

### **Stanford University Committee on Environmental Health and Safety (2019 – 2021)**

Position: Undergraduate Representative

- Served as the undergraduate representative to inform health and safety efforts on Stanford’s campus

### **National Society of Black Engineers (2018 – 2022)**

Positions: Stanford Chapter Academic Excellence Chair (2019 - 2020), Region 6 Programs Chair (2020 - 2021), Region 6 Chair (2021 - 2022)

- Planned academic skills workshops and weekly study nights with tutoring to provide academic resources to engineering students from underrepresented backgrounds
- Planned conference programming to connect 600 black undergraduates in STEM around the West Coast with professional opportunities
- Coordinated the Regional Executive Board and lead the planning of regional conferences and solicitation of 50 corporate partnerships

### **Society of Women Engineers (2018 – present)**

Position: Member

## **LEADERSHIP & COMMUNITY SERVICE**

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### **Students for a Sustainable Stanford**

Education Projects Coordinator (2019 - 2020), Co-director (2020 - 2021), Stanford University

- Led the 100-person sustainability organization on Stanford’s campus by advocating for institutional change and progress in campus-wide sustainability efforts with

administrators and other student groups (e.g., Stanford in Government, Students for Environmental and Racial Justice, etc.)

- Led a team of seven undergraduates to plan and execute educational programming on sustainability and environmental justice issues for students at Stanford and in the greater community

### **Stanford Conservation Program**

Diversity and Inclusion Fellow (2019 - 2021), Stanford University

- Planned and hosted annual events celebrating diversity in environmental fields, including a panel on environmental justice and COVID-19 and a professional development conference for young professionals interested in the environment

### **Seeds of Change**

Student Leader (2019 - 2020, 2021 - 2022), VMWare Women's Leadership Lab

- Organized and lead monthly leadership trainings for 15 high school girls interested in STEM

### **Society of Women Engineers – Outreach for Students in Engineering and Science**

Student Leader (2018 - 2020), Stanford University

- Designed a year-long engineering project for 30 high school girls interested in engineering and served as a mentor for participants interested in environmental applications

## **SKILLS**

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**Laboratory:** gas chromatography, nuclear magnetic resonance and analysis; ion chromatography operation and data analysis; flow-injection or segmented flow analyzer operation and data interpretation; potentiostat operation

**Computer:** Python/MATLAB, Microsoft Office, R, Graphpad Prism, OriginLab