

**Brielle Januszewski**  
**Brielle.Januszewski@yale.edu**

## **EDUCATION**

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**Yale University** – New Haven, CT August 2020 – Present

- **Ph.D.**, Chemical and Environmental Engineering
- **M.Phil.**, Chemical and Environmental Engineering
- **M.S.**, Chemical and Environmental Engineering

**Arizona State University - Barrett, the Honors College** - Tempe, AZ August 2016 – May 2020

- **B.S.E.**, Civil (Environmental) Engineering; French Minor
- **B. S.**, Biological Sciences (Conservation Biology and Ecology)
- **B.A.**, Political Science; International Studies Certificate
  - **GPA:** 4.10/4.00 – Summa Cum Laude
  - **Honors Thesis:** Risk Assessment and Toxicity to Terrestrial Plants of Soil Contaminated by Heavy Hydrocarbons and Treated with Ozone; **Director:** Dr. Bruce Rittmann

## **RESEARCH EXPERIENCE**

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**Biodesign Swette Center for Environmental Biotechnology, Rittmann Lab – Arizona State University** March 2017-May 2019

- Worked with two PhD students studying soil bioremediation by using ozone gas treatment to degrade heavy hydrocarbons.
- Prepared soil columns for ozone treatment, prepared samples for total organic carbon, dissolved organic carbon, total petroleum hydrocarbon, pH, and moisture experiments, analyzed data, and sieved soil for field deployment experiments.
- Conducted an independent project to test risk assessment and terrestrial plant toxicity after short-term ozone doses for thesis.

**Center for WaSH-AID, Nanomaterials and Thin Films Lab, Glass Lab – Duke University** Summer 2018

- Worked on an independent project for the Reinvent the Toilet Challenge to remove ammonia from blackwater.
- Removed ammonia from model solutions and treated blackwater using electrochemical techniques and novel materials (Magneli phase titanium sub-oxide “Ebonex”) for use in a self-contained toilet system in developing countries.

**Center for Energy, Environmental, and Economic Systems Analysis – Argonne National Laboratory** Summer 2019

- Worked to conduct a life cycle assessment (LCA) comparing dry factory technology, specifically using supercritical carbon dioxide (scCO<sub>2</sub>), to traditional technology for textile dyeing.
- Created process flow diagrams and characterized material and energy flows in both conventional and alternative processes, particularly looking at wastewater treatment.

**Nanotechnology-Enabled Water Treatment (NEWT) Center, Perreault Lab – Arizona State University** August 2019-May 2020

- Worked to determine the dose-toxicity response of nanomaterials, such as graphene oxide and carbon nanotubes, on algae, and the dose-toxicity response of silver nanoparticle impregnated graphene oxide materials on bacteria.

**Elimelech Lab – Yale University** September 2020-Present

- Modified and tested commercial nanofiltration membranes with polymeric layer-by-layer assembly for targeted ion recovery.
- Modified commercial cation exchange membranes with polyelectrolyte multilayers for valent selective removal of scale forming ions.
- Oversaw the decision-making process, purchase, installation, and management of a departmental ion chromatography analytical instrument (Metrohm Professional IC Vario TWO/SeS).

## **PROFESSIONAL EXPERIENCE**

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**Camp Counselor at Freshman Engineering (E2) Camp** Summer 2017, Summer 2018, Summer 2019

- Led ASU Engineering Freshman students during a 3-day camp to introduce them to the university and engineering.

**ASU Undergraduate Teaching Assistant (UGTA)** January 2018-May 2020

- Attended recitations and taught undergraduate Civil Engineers the fundamentals of engineering analysis (CEE 210-Statics).
- Attended recitations and taught undergraduate Civil Engineers about solid mechanics (CEE 213-Deformable Solids).
- Held review sessions and office hours to address muddiest points regarding fluid mechanics (CEE 341-Fluid Mechanics).
- Facilitated class discussions for Honors students in a critical thinking and writing course (HON 171-The Human Event).
- Attended lectures and taught students about water and wastewater treatment (CEE 462-Unit Operations in Env. Eng.).

**Kimley – Horn & Associates, Inc. - Tempe, AZ** January 2020-August 2020

- Assisted Professional Engineers in preparing construction documents in AutoCad.
- Learned about land development and the engineering design process.

**Yale University Teaching Fellow (TF)** September 2021-May 2023

- Held office hours and graded homework submissions for undergraduate and graduate Chemical and Environmental Engineering students in the Environmental Transport Processes course (ENVE 448/648 – Environmental Transport Processes)
- Held office hours and graded project checkpoint submissions for semester-long analytical climate change engineering solution project (ENVE 464/ENAS 664 – Engineering Solutions to Climate Change)

## **ACTIVITIES**

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**Equity in the Job Search Symposium (EJS), Co-Chair** August 2022-Present

## **Brielle Januszewski**

- Led a team of 15 people to organize an annual symposium meant to help attendees identify, address, and overcome implicit biases in the job search through a keynote speaker and tailored workshops.
- Oversaw financial/fundraising, advertising, and outreach tasks, coordinated travel and lodging arrangements for speakers, and managed day-of logistics.

### **NEWT Center, Student and Postdoc Leadership Council (SPLC), Yale Social Chair** **May 2021-September 2023**

- Worked with the NEWT SPLC President, Treasurer, and Yale VP, to plan social events to facilitate member interaction and networking.

### **Yale Career Development Leadership Program, Representative for EJS** **October 2022-May 2023**

- Selective program that provides high-achieving student leaders engaged in professional development the resources necessary to maximize their reach and impact on the Yale student body.
- Attended meetings and participated in discussion and preparing distributed materials for Yale graduate students.

### **Graduate Engineering Community Organization (GECO), Executive Board Member** **August 2022-Present**

- Organization formed in 2021 in response to departmental diversity, equity, inclusion, and belonging (DEIB) action plans calling for increasing community building and inclusion efforts for Engineering graduate students.
- Helped to organize events and socials to build community among engineering graduate students.

### **Chi Epsilon (Civil Engineering Honors Society), President** **May 2017-May 2020**

- Worked with the faculty and school and managed a group of officers to host meetings and initiations for top civil engineers.
- Previously the Marshal-planned general body meetings, technical tours, and initiation for top Civil Engineering students.
- Previously the Vice President-assisted the President in directing and maintaining the organization.

### **Fulton Ambassadors, Membership Engagement Director** **December 2016-May 2020**

- Organized professional, alumni, and social activities and events for current members to enrich membership.
- Volunteered to teach high school students about ASU engineering through campus tours, special events, shadow days, etc.
- Previously Recruitment Director- Recruited members, organized recruitment, reviewed applications, and held interviews.
- Awarded the Most Dedicated Ambassador in Spring 2017 as the member with the most volunteer hours recorded.

### **American Society of Civil Engineers (ASCE), Concrete Canoe Project Manager (PM)** **January 2017-May 2020**

- Led a team of civil engineers to design and construct a lightweight concrete canoe to compete against 17 regional schools for two years.
- Coordinated scheduling, finances, mix design, paddling, and construction, and completed deliverables including design papers, presentations, and final products.
- Competed in PSWC 2019 as a paddler, presenter, and PM and ranked 4<sup>th</sup> in co-ed sprint, 4<sup>th</sup> in presentation, and 5<sup>th</sup> overall.
- Completed a Senior Design Project using the Construction aspect of the Concrete Canoe Competition.

### **School of Sustainable Engineering and the Built Environment (SSEBE) Ambassadors, President** **May 2018-May 2020**

- Recruited and trained new members for the organization, maintained a volunteer schedule, and worked with advising staff.
- Assisted incoming students in choosing classes, told them about opportunities on campus, and gave them advice to succeed.

### **Tau Beta Pi (Engineering Honors Society), External Affairs Officer and Member** **August 2018-May 2019**

- Communicated with other officers and external speakers to plan general body meetings and initiations.

### **HONORS/AFFILIATIONS/AWARDS**

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| • American Membrane Technology Association/Reclamation Fellowship            | Fall 2023              |
| • Nanotechnology Enabled Water Treatment (NEWT) Fellow                       | Summer 2023            |
| • Yale John Bennett Fenn Fellowship  | Fall 2020              |
| • National Science Foundation Graduate Research Fellowship                   | April 2020             |
| • Yale Sheffield Fellowship  | April 2020             |
| • ASU University Outstanding Graduate from the Fulton Schools of Engineering | May 2020               |
| • ASU Civil, Sustainable, and Environmental Engineering Outstanding Graduate | May 2020               |
| • ASU Fulton Schools of Engineering IMPACT Award Winner                      | May 2020               |
| • ASU Moeur Award Winner   | May 2020               |
| • ASCE Arizona Section Outstanding Senior Award, Arizona State University    | Fall 2019              |
| • Fulton Undergraduate Research Initiative (FURI) Grant                      | Spring 2018, Fall 2018 |
| • Grand Challenge Scholars Program Research Grant                            | Spring 2019            |
| • ASU/ NASA Space Grant  | Fall 2019-Spring 2020  |
| • Phi Beta Kappa Honors Society  | Spring 2019-Present    |
| • Grand Challenge Scholars Program (GCSP), Member and Graduate               | Fall 2016-Spring 2020  |

### **PUBLICATIONS**

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- Chen, T., Delgado, A. G., Yavuz, B. M., Januszewski, B., Zuo, Y., Westerhoff, P., Krajmalnik-Brown, R., Rittmann, B. E., "Multi-cycle Ozonation + Bioremediation for Soils Containing Residual Petroleum," *Environmental Engineering Science* 2019 36 (12). DOI: 10.1089/ees.2019.0195

### Brielle Januszewski

- Cruces, E., Barrios, A. C., Cahue, Y. P., **Januszewski, B.**, Gilbertson, L. M., Perreault, F., “Similar Toxicity Mechanisms Between Graphene Oxide and Oxidized Multi-Walled Carbon Nanotubes in *Microcystis aeruginosa*,” *Chemosphere* 2020 265. DOI: 10.1016/j.chemosphere.2020.129137
- Fan, W., Li, Y., Wang, C., Duan, Y., Huo, Y., **Januszewski, B.**, Sun, M., Hua, M., Elimelech, M., “Enhanced Photocatalytic Water Decontamination by Micro-Nano Bubbles: Measurements and Mechanisms,” *Environmental Science & Technology* 2021. DOI: 10.1021/acs.est.0c08787
- Wang, K., Wang, X., **Januszewski, B.**, Liu, Y., Li, D., Fu, R., Elimelech, M., Huang, X., “Tailored Design of Nanofiltration Membranes for Water Treatment Based on Synthesis-Property-Performance Relationships,” *Chemical Society Reviews* 2021. DOI: 10.1039/D0CS01599G
- Yavuz, B., **Januszewski, B.**, Chen, T., Delgado, A., Westerhoff, P., Rittmann, B., “Using radish (*Raphanus lativus L.*) germination to establish a benchmark dose for the toxicity of ozonated-petroleum byproducts in soil,” *Chemosphere* 2023. DOI: 10.1016/j.chemosphere.2022.137382
- Cruces, E., Barrios, A. C., Cahue, Y. P., **Januszewski, B.**, Sepulveda, P., Cubillos, V., Perreault, F., “Toxicity mechanisms of graphene oxide and cadmium in *Microcystis aeruginosa*: evaluation of photosynthetic and oxidative responses,” *Aquatic Toxicology Accepted*

### GRANT PROPOSAL EXPERIENCE

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- *Selective Ion-Exchange Membranes for Electrodialysis Pretreatment of Brackish Water for High Water Recovery Reverse Osmosis*. Submitted to National Alliance for Water Innovation (NAWI). December 2022. Principal Investigator: Jovan Kamcev. Contributions: Co-wrote the proposal and designed some figures (~50%).

### SEMINARS AND CONFERENCE PRESENTATIONS

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#### Oral

- **Januszewski, B.**, DuChanois, R., Elimelech, M., “Negative Rejection in Polyelectrolyte Multilayer Nanofiltration Membranes for Selective Ion Recovery,” *North American Membrane Society Conference*. May 2022. Phoenix, AZ.
- **Januszewski, B.**, Fan, H., Elimelech, M., “Monovalent Selective Cation Exchange Membranes for Brackish Water Desalination by Electrodialysis,” *Materials Research Society Conference*. November 2023. Boston, MA.

#### Poster

- **Januszewski, B.**, DuChanois, R., Wang, L., Elimelech, M., “Negative Rejection in Polyelectrolyte Multilayer Nanofiltration Membranes for Selective Ion Recovery,” *Nanotechnology-Enabled Water Treatment Annual Meeting*. December 2021. Houston, TX.
- **Januszewski, B.**, DuChanois, R., Wang, L., Elimelech, M., “Negative Rejection in Polyelectrolyte Multilayer Nanofiltration Membranes for Selective Ion Recovery,” *North American Membrane Society Conference*. August 2021. Estes Park, CO.