JAYDE ALEXANDRA AUFRECHT

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EDUCATION

The University of Tennessee, Knoxville, TN
M.S. in Environmental Engineering, 2017
Ph.D. track in Energy Science and Engineering, expected completion Spring 2019
Research interests: microfluidics, rhizosphere interactions, sustainability, and international development

Vanderbilt University, Nashville, TN
B.Eng. in Chemical and Biomolecular Engineering
Research Advisor: Dr. Rizia Bardhan
Minors: Chemistry, Nanotechnology

LEADERSHIP AND SKILLS

2014-present *Founding Executive Board Member*, Pipeline: Vols for Women in STEM
- Organize monthly general body and executive board meetings to promote awareness of women's issues in STEM fields and offer professional development to members
- Coordinate *Annual Women in STEM Research Symposium* to commemorate all levels of academic achievement by women in STEM on campus
- Helped create an interdisciplinary graduate-undergraduate mentoring program to retain women in STEM fields

2015-present *University Recruiter*, Oak Ridge National Laboratory
- Promote the Laboratory and Bredesen Center at career fairs
- Encourage students to consider internships and careers in scientific research

2015-present *Research Mentor*
- Introduce new graduate students to common laboratory techniques, etiquette, and workplace culture
- Mentor undergraduate summer interns through scientific process from project design to results synthesis

2017 *Alumna,* Public Leadership Education Network (PLEN) Women in Global Policy seminar series

2016 *Invited Speaker,* University of Tennessee Microbiology Dept. NSF GRFP Seminar

Languages: Spanish (ILR level 2) and German (ILR level 2)

Laboratory: Sterile biological culture technique, optical, confocal and fluorescence microscopy, Scanning electron and Raman microscopy, Plasma enhanced chemical vapor deposition, Reactive ion etching, Sputter deposition, Direct write photolithography and soft lithography

Computational: MATLAB, CAD, PHREEQC, Aspen Tech, COMSOL Multiphysics, Microsoft Office, Adobe Illustrator

Aufrecht, Jayde A. 5/21/2017 7:59 PM
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RESEARCH EXPERIENCE

2015-*present:* **Designing microfluidic platforms to visualize rhizosphere interactions,** PhD research
Plant-Microbe Interfaces (PMI), Oak Ridge National Laboratory
- Design and fabricate custom microfluidic platforms to visualize rhizosphere interactions
- Culture and image the spatio-temporal dynamics of various biological systems
- Present research updates regularly to a team of scientists

- Engage in interdisciplinary and international collaborations by contributing to research proposals and experiments

2014: **Identifying key organisms involved in dichloromethane remediation**, Summer intern
Oak Ridge National Laboratory, Advisor: Dr. Frank Löffler

- Cultured anaerobic microbial consortia and studied their ability to dechlorinate groundwater contaminants
- Amplified bacterial and archaeal 16S rRNA and cloned these genes into *E. coli*
- Created a clone library by assembling consensus nucleotide sequences and matching them to database organisms

2013-2014: **Synthesizing metallic nanoparticles for environmental applications**, Undergraduate Research
Department of Chemical Engineering, Vanderbilt University, Advisor: Dr. Rizia Bardhan

- Contributed to independent and collaborative research projects
- Chemically synthesized gold, bimetallic, and peptide nanoparticles and characterized their Raman spectroscopy peaks
- Optimized plasmonic nanomaterials for dye-sensitized solar cell enhancement and explosives residue detection

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SCIENTIFIC COMMUNICATION

Aufrecht, J.A., Timm, C.M., Millet, L.J., Doktycz, M. J., Retterer, S.T. *Arabidopsis thaliana* root colonization kinetics and spatial distribution of plant-growth promoting bacteria in a microfluidic system. *(manuscript in preparation)*

Aufrecht, J.A., Doktycz, M.J., Retterer, S.T. Replicating natural environments: Soil-inspired microfluidic architectures. *(manuscript in preparation)*

Aufrecht, J.A., Ryan, J.M., Allison, D.P., Nebenführ, A., Doktycz, M.J., Retterer, S.T. Imaging the root hair morphology of *Arabidopsis* seedlings in a two-layer microfluidic platform. *Journal of Visualized Experiments* (in press)

Aufrecht J.A., Timm C.M., Ryan, J.M., Bible A.N., Millet L.J., Nebenfuehr A., Morrell-Falvey J.L., Doktycz M.J., and Retterer S.T. (Oct. 2016) Multilayer Plant-In-Chip Platform For Non-Destructive Visualization Of Root Morphology During Co-Culture With Beneficial Bacteria. Miniaturized Systems for Chemistry and Life Sciences Micro-TAS, Oral Presentation. Dublin

Aufrecht, J.A., Doktycz M.J., Retterer S.T. (June 2016) Replicating natural environments: Soil-inspired microfluidic architectures. Electron, Ion, and Photon Beam Technology and Nanofabrication Conference. Oral Presentation. Pittsburgh.

Aufrecht, J.A. (2013) Plasmon Resonances in Bimetallic Nanostructures: The Role of Temperature and Core/Shell Architecture. Poster Presentation. American Institute of Chemical Engineers National Conference. San Francisco.

A complete list of co-authored publications is available upon request.

FUNDING AND AWARDS

2017: **Scholarship**, McClure Scholars Program, Proposal title: "Climate Change Adaptation through Sustainable Agriculture in Malawi" ($4973)
2017: **Outstanding Achievements in Research**, University of Tennessee- Graduate Student Senate
2016: **Nominee to the Lindau Meeting of Nobel Laureates,** Oak Ridge Associated Universities
2016: **Fellowship**, National Science Foundation (NSF) Graduate Research Fellowship (GRFP) ($138,000)
2016: **Accepted User Proposal,** Center for Nanophase Material Sciences, ORNL, *Collaborator*
2014: **Fellowship**, Energy Science & Engineering, Bredesen Center for Interdisciplinary Research and Graduate Education, University of Tennessee ($30,000)
2014: **Third Place**, Vanderbilt Senior Design Concept Competition
2010: **Winner**, Vanderbilt Commons Writing Competition