# Elena Christopher-Allison
## Graduate Engineer

### EDUCATION
- Civil Engineering, MSC - the University of Texas at Austin
- Chemistry with Honors BS, Mathematics – Portland State University

### PUBLICATIONS
- Aerobic method for the synthesis of nearly size-monodisperse bismuth nanoparticles from a redox non-innocent precursor – H. Winter, **E. Christopher-Allison**, A. L. Brown, A. M. Goforth

### CONFERENCE PRESENTATIONS
- Impact of indoor surface mass accretion on heterogeneous ozone chemistry – 15th Conference of ISIAQC - Indoor Air. Philadelphia, Pennsylvania, 2018
- Exploring the Ozone Chemistry of Indoor Environments. Maseeh College of Engineering and Computer Science, URMP Poster Session. Portland, Oregon, 2018.
- A Practical and Efficient Synthesis of Bismuth Nanoparticles. University of Washington Undergraduate Research Symposium. Sponsored by the McNair program at Portland State University. Seattle, Washington. 2017.

Ms. Christopher-Allison came to Austin to pursue her master's degree in civil engineering at the University of Texas. She worked with Dr. Pawel Misztal, Dr. Atila Novoselac, and Dr. Karey Kinney on various air quality research projects related to human health, healthy buildings, and current issues such as the Covid 19 pandemic. She then started her career in industry at HRGreen, formerly LDC Teams, as a land development graduate engineer working on single family home subdivisions and designed storm water systems under the supervision of project managers and other licensed professional engineers. Because of her unique background in STEM and research, she brings distinctly creative and innovative perspectives to the team.

Ms. Christopher-Allison's skills include:
- Broad Software Knowledge, Including:
  - Microsoft Office Suite
  - MATLAB, R, Python
  - HEC-HMS, HEC-RAS
  - Civil3D, AutoCAD, SolidWorks
  - LabView
  - HTML, Google Sites, WordPress
  - StormCAD
- Research Project Management
- Storm Design for Civil Engineering
- Wastewater Design for Civil Engineering
- Floodplain Analysis and Modeling
- Technical Report Writing
- Mathematical Modeling of Engineered and Natural Systems

### HIGHLIGHTED PROJECT EXPERIENCE

**Transportation Development Services, City of Austin (Transportation Planner) Austin, TX**

Ms. Christopher-Allison accepted a position coordinating with City staff to review proposed zoning cases, subdivisions, and site plans for compliance with transportation requirements. This includes performing the preliminary screening of subdivision and site plan applications to identify major problems and streamline the review process, preparing reference documentation for public hearings. (May 2022 – Present)

**Cooking Oil VOCs and Air Chemistry of Indoor Environments** **The University of Texas at Austin - Austin, TX**

Under the guidance of Dr. Pawel Misztal (PhD), Ms. Christopher-Allison investigated a variety of cooking oils and the respective VOC fingerprints under a variety of atmospheric conditions. These conditions included oxygen rich, oxygen free, and reactive oxygen environments with various relative humidities and temperatures. This research was supported by the National Science Foundation Graduate Research Fellowship Program and was conducted as part of the Master of Science requirement. (2020-2021)

**Exploring the Ozone Chemistry of Indoor Environments** **Portland State University - Portland, OR**

Under the mentorship of Dr. Elliott Gall (PhD), Ms. Christopher-Allison investigated the deposition velocity of ozone and how environmental factors (such as relative humidity and temperature) affected this deposition. Also investigated the VOC formation by using PTR-ToF-MS technology and PTR Viewer software. She also analyzed data using Microsoft Excel and MATLAB and presented findings at the 2018 Indoor Air conference hosted in Philadelphia. This research was supported by the PSU Undergraduate Research and Mentorship Program and the Semiconductor Research Corporation and was conducted as part of the requirement for the Honors degree program. (2017-2018)

**Synthesis of Nearly Size-Monodisperse Bismuth Nanoparticles** **Portland State University - Portland, OR**

Under the mentorship of Dr. Hayden Winter (PhD) and Dr. Andrea Goforth, Ms. Christopher-Allison aided in the discovery and development of a one-pot, aerobic bismuth nanoparticle synthesis and the characterization of the resulting nanoparticles. The bismuth nanoparticles have applications in the nanotechnology and biomedical fields. Some of the techniques used by Ms. Christopher-Allison include IR Spectroscopy, TEM Image Analysis, PL and XRD Spectroscopy, Microsoft Excel data analysis, autoclave pressure-temperature reactions, and air-free chemical synthesis. This research was supported by Richard and Helen Philips through the Carl Wamser Scholarship, by the McNair Scholars Program, and by the Louis Stokes Alliance for Minority Participation Program. (2016-2017)