Daniel Highland

dhighland918@gmail.com • https://dehighland.github.io/

Education

THE COLLEGE OF WILLIAM & MARY

Master of Science, Computer Science   **July 2023**

Thesis Title: "Amsel Criteria Based Computer Vision for Bacterial Vaginosis Diagnosis"
Committee: Huajie Shao, Qun Li, and Gang Zhou (Chair)

Bachelor of Science, Chemistry (summa cum laude)   **May 2021**

Research and Work Experience

RESEARCH ASSISTANT   **May 2023 - Present**

Product Quality and Compliance Department, FHI 360

- Conducts research on methods to enable low- and middle-income countries to adopt handheld Near-Infrared (NIR) Spectrometers for finished pharmaceutical product (FPP) quality control.
- Topics include spectrometer-to-spectrometer calibration transfer techniques, methods to address environmental artifacts in NIR spectra, and software solutions (Python, R, and Shiny) for efficient spectral processing and analysis.
- Created and maintains training manuals and videos on handheld NIR spectra collection and FPP quality assessment intended for non-expert audiences.

GRADUATE RESEARCHER   **Dec. 2021 - Jul. 2023**

HealthComp Lab (Advisor: Gang Zhou), The College of William & Mary

- Conducted research on applications of deep learning models in healthcare contexts.

UNDERGRADUATE RESEARCHER   **Aug. 2018 – Dec. 2020**

Wustholz Lab (Advisor: Kristin Wustholz), The College of William & Mary

- Conducted research on Surface Enhanced Raman Spectroscopy (SERS) approaches to pH detection with rhodamine-based dyes for cancer cell identification.

Publications and Posters

Highland, D. & Zhou, G. (2024). Amsel criteria based computer vision for diagnosing bacterial vaginosis. *Elsevier Smart Health, 33*. https://doi.org/10.1016/j.smhl.2024.100501

Highland, D. & Zhou, G. (2022). A review of detection techniques for depression and bipolar disorder. *Elsevier Smart Health, 24*. https://doi.org/10.1016/j.smhl.2022.100282

Highland, D., Eady, M., & Jenkins, D. (2024, October 23). Environmental contributions and non-sample related impacts on the spectra from a handheld diffuse reflectance spectrometer. Poster at *SciX 2024*, Raleigh, NC, United States.

Eady, M., Highland D., & Jenkins, D. (2024, October 23). Tuberculosis medications and non-destructive compliance screening with comparison of handheld and benchtop diffuse reflectance spectrometers. Poster at *SciX 2024*, Raleigh, NC, United States.

Honors and Awards

Merck Index Award, The College of William & Mary Department of Chemistry   **May 2021**