**Yohanna White**

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**EDUCATION**

**PhD Graduate Student, Chemistry**

University of Georgia

Advisor: Geoffrey Smith

Current GPA: 3.62

**Bachelor of Science, Chemistry (ACS Certified)**

University of California, San Diego

Graduation: 2012

GPA: 3.40; three-time Provost Honors recipient

**RESEARCH EXPERIENCE**

**Graduate Researcher**

***Smith Group, UGA* May 2018 – present**

***Current Project:*** *Optimize a broadband cavity enhanced spectrometer (BBCES) that measures the extinction of ambient aerosol particles. The goal is to advance the current set up to a field deployable instrument that will be utilized for characterization of aerosol particles.*

* Optimized LabView code that controls instrumentation
* Reduced instrumental drift by improving temperature stability
* Performed experiments that validated the instrument’s functionality

***Previous Project****: Developed methods and techniques that utilize the discrete dipole approximation (DDA) to accurately model the optical properties of black carbon aggregates*

* Calculated and modeled scattering and absorption properties of various geometric structures. The initial intent was to reproduce the theoretical scattering properties of spherical particles, and to develop computational methods for classification of black carbon aggregates (BCA)
* Analyzed data using the Pandas library for Python
* Validated DDA results by comparing to Mie theory calculations

**Graduate Researcher August 2015 – May 2018**

***Woods Group, UGA***

***Project 1:*** *Quantified the interaction energy between aliphatic and aromatic compounds*

* Developed a functional form that can describe and model the non-bonded interactions present in carbohydrate-protein complexes. The functional form was implemented using C++ and the Woods group’s library (GLYCAM Molecular Modeling Library or GMML) was employed in the development of the CH-pi program
* Tested the program with different model systems, and the output energies were compared to quantum mechanics potential energy curves. The initial goal of this project was to gain the ability to screen crystal structures and quantify the strength of CH-pi interactions present. The second goal was to be able to implement the functional form into GMML and the AMBER molecular modeling software

***Project 2:*** *Developed a computational library of substituents and computational strategies for inhibitor drug design*

* Created a library of chemical moieties appropriate for a carbohydrate inhibitor designed to target influenza viruses. VMD, Chimera, and Gaussian are used for visualization and building of starting structures
* Developed charges, bond, angle, and torsion parameters necessary for molecular dynamics (MD) simulations. Gaussian was used to generate reference QM potential energy curves. Numerical calculations were performed to estimate binding affinities. Binders and non-binders can be distinguished in this manner

**RESEARCH EXPERIENCE, CONT.**

**Undergraduate Researcher** **January-September 2012**

***Bertram Group, UCSD***

***Project:*** *Optimization of an optical particle counter*

* Researched an innovative technique to quantify aerosol particles by using an optical particle counter that can measure the concentration by number of particles rather than by weight
* Plotted the distribution functions of aerosol particles using MATLAB
* Gained hands-on experience with electronics by incorporating operational amplifiers into a designed circuit
* Presented independent research to the Bertram group

**WORK EXPERIENCE**

**Teaching Assistant for Advanced Analytical Labs August 2018 – present**

* Supervised undergraduate chemistry students learning to use advanced instrumentation such as the atomic absorbance spectrometer and fluorimeter
* Graded and provided feedback on lab reports

**Teaching Assistant for Molecular Modeling Course January 2017-April 2017**

* Aided graduate students in learning molecular modeling and computational techniques. Prepared labs and graded exams and oral presentations
* Topics taught during the course include learning to use the Linux terminal, usage of the AMBER software, molecular dynamics, and molecular docking

**Teaching Assistant for Chemistry Labs August 2015-present**

* Assisted undergraduate students learn and experience general chemistry lab experiments

**Lab Chemist May 2013 – May 2015**

***Herty Advanced Materials Development Center***

110 Brampton Road, Savannah, GA 31408

* Member of the research and development group that provided chemical analyses to customers
* Developed a procedure for the analysis of the removal of free chlorides from biomass using an ion-selective chloride electrode. The project concluded with a technical presentation to senior management
* Customized protocols for the differential scanning calorimeter and simultaneous thermal analyzer based on client needs
* Assumed the role of chemical safety officer, which included the following responsibilities: communicating with Georgia Southern University’s Environmental Safety Services officer, implementing the company’s chemical hygiene plan, attending plant and lab safety inspections, organizing the chemical inventory, responsible hazardous waste treatment and disposal, and general lab maintenance

**PUBLICATIONS**

* Y. Ji, **White Y.,** J. Hadden, O.C. Grant, R. Woods (2017). “New insights into influenza A specificity: an evolution of paradigms.” Current Opinion in Structural Biology 2017, 44:219–231.

**TECHNICAL SKILLS**

*Computational*

* Linux, Bash, C++, Python and the Pandas library, MATLAB®, Vim, LabView
* Git and GitHub
* DDSCAT, Molecular Dynamics (AMBER), Gaussian, GLYCAM Molecular Modeling Library (GMML)
* Visualization software packages such as VMD and Chimera

*Experimental*

* Instrumentation such as differential scanning calorimeter and simultaneous thermal analyzer, atomic absorption spectrometer, fluorimeter, UV/vis spectrophotometer
* Arduino projects

**TRAINING AND WORKSHOPS**

**Molecular Sciences Software Institute Software Summer School July 24 – August 2, 2017**

**(MolSSI)**

* Chosen to attend an 8-day training course designed for computational graduate students, which focused on best practices in software engineering. Topics covered include version control, continuous integration, and code optimization

**COMMUNITY AND VOLUNTEER EXPERIENCE**

***Graduate Research Assistants Diversifying STEM (GRADS)* February 2018 - present**

* Currently the Vice President; responsible for outreach and initiating STEM activities and social gatherings
* Aided in the planning of a panelist discussion with women in reputable STEM careers. Guest speakers included Dean Barbour (Dean of Graduate School), Dr. Manley (Department Head of Genetics), Dr. Frossard (Assistant Professor in Chemistry), and Dr. Richter-Roche (Senior Research Scientist at Micron Biomedical, Inc). The event attracted ~50 people, and its purpose was to celebrate women’s contribution to significant fields
* Collaboration with peers to decide on upcoming events and socials

***Society of Women Engineers (SWE)* November 2013 - 2016**

* Participated in the planning of a successful two-month long summer robotics camp for girls
* Encouraged upper management at Herty to support the robotics camp. Herty then donated four LEGO® Mindstorms robots, allowing SWE to enroll more students in the robotics camp
* Co-directed a FIRST® LEGO® League team. Coordinated lesson plans with a middle school teacher and guided students by teaching robotics and programming skills
* Was an active member of the steering committee for Girls’ Engineer It! Day conference (GEID). GEID attracts roughly 300 middle and high school students and about 75 educators and advocates. Hosted courses throughout the day involving exciting science experiments
* Participated in career days in Savannah middle schools

**Migrant Rights Awareness 2009-2012**

* UCSD student organization that provided support and resources to immigrant students. Responsibilities included organizing events and fundraisers with peers

**Other Volunteer Activities**

***Art and Science Collaboration* October 2018**

* Shared current research in atmospheric chemistry with a graduate student studying printmaking. The artist then portrayed my research in art form. The purpose of this collaboration was to encourage the public to gain an appreciation for both fields, and to emphasize the importance of communicating ideas. The artwork will be displayed in public places for two months

***Herty Advanced Materials Development Center* September 20, 2014**

* Representative for Herty Advanced Materials Development Center in a science fair. Introduced students to electronic circuits and Arduino projects

***Expanding your Horizons Conference, San Diego* March 2012 and March 2013**

* Guided and mentored girls through their learning experience in STEM in a full-day conference