Mackenzie G. Robey

kenzie@depotanalytics.co • 407-683-6326

Education

Bachelor of Science in Chemical Engineering, Suma Cum Laude ***May 2019***
Minor in Biomolecular Engineering
GPA: 3.86/4.00
University of Florida, Gainesville, FL

Master of Science in Mechanical Engineering ***May 2025***
Focus in Scientific Computing
University of Florida, Gainesville, FL

Work Experience

Research and Development Engineer, PepsiCo ***September 2019 – September 2021***

- Performed experimentation and implementation of mid-scale to full-scale manufacturing processes, shelf-life tests, ingredient qualification, supply chain optimization, and business productivity initiatives
- Developed kinetic modeling of oil breakdown in fryer based on fatty-acid distribution and equipment monitoring programs using Python
- Tested and implemented engineering solutions that lead to $3 MM in savings

Chemical Engineering Honor's Senior Thesis, UF Department of Chemical Engineering ***August 2018 – April 2019***

- Researched extended drug release profiles of dexamethasone from oleogel rods made from different gelator molecules
- Determined gelator molecules to study and conducted experiments testing their respective impacts on oleogel formation and the drug release profile
- Publication from research project: Macoon, R., Robey, M., Chauhan, A., "Effect of Gelators on Drug Delivery from Oleogel Rods", 2020, *European Journal of Pharmaceutics*

Research and Development Engineering Intern, PepsiCo ***June 2018 - August 2018***

- Designed and conducted an experiment to develop an optimized prototype utilizing a novel raw material on a process design containing newly developed unit operations
- Applied design parameters to mid-scale confirmation and tested the determined process conditions on alternate raw materials
- Developed a mathematical model to predict formation of an undesired compound based on analytical color values

Process Engineering Intern, Frito-Lay ***June 2017 - August 2017***

- Developed automatic tracking method for slicer heads and wrote standard operating procedure for total head rebuild
- Trained technicians on program and implemented standard operating procedure for site rebuild training
- Completed scope of work for chemical dispensing room upgrade, including: designing dispensing station, coordinating with third-party representatives, and coordinating cross-functional round table

Howard Hughes Medical Institute, UF Department of Neuroscience ***January 2015 - May 2016***

- Conducted full-time research from May 2015 - August 2015 through Howard Hughes Medical Institute (HHMI)
- Aided in the study of the effects of cocaine on the brain by researching/testing pharmaceutical and behavioral treatments, performing stereotaxic brain surgery, and slicing brains in a cryostat
- Presented the findings at Annual Care Convention

Leadership/ Service

Officer, PepsiCo Green ***September 2019– Present***

- Coordinated site-wide trail clean ups, planned and presented campus lunch and learns on how to decrease carbon foot print, and led recycling initiatives
- Partnered with building's landscaping company to implement more sustainable practices

Teaching Assistant, UF Department of Chemical Engineering ***August 2018– April 2019***

- Served as assistant for senior engineering course "Process Economics and Optimization"
- Assisted in generation of solution manuals for coursework and exams

Administrative Vice President, UF Engineering Ambassadors ***January 2016 – January 2017***

- Served as official representative of the college by completing tours, planning outreach events to potential engineering students, and volunteering in community
- Developed improved automatic method to track member's points
- Selected to speak at "Gator Engineering Experience Day" to recently accepted Gator engineering students
- Coordinated service events including planting trees in local woods and refurbishing local elementary schools

Senior Intern, Cru at the UF ***January 2015 – May 2018***

- Organized weekly meetings, generated curriculum, and partnered with staff to lead two groups of 12 members
- Created and implemented new recruitment event to promote Cru at UF through greater interaction with student body
- Served as emcee during Cru meetings, providing organizational updates weekly to a group of 300+ students

Chemistry Peer Mentor, UF Department of Chemistry ***January 2015 - May 2015***

- Conducted weekly tutoring sessions for 600 students enrolled in the Introduction to Chemistry (CHM1025) course
- Proctored exams and held weekly office hours

MentorUF, Center for Leadership and Service ***December 2014 - May 2015***

- Administered tutoring for 24 under-privileged elementary school students through UF's After-School Gators Program
- Facilitated after school activities designed to motivate the students to pursue higher education and healthier living

Skills

- Competent: Python - specialization in data analysis
- Familiar: Java, C++
- Lean Six Sigma Certified (in process)
- American Institute of Chemical Engineering Certifications: Risk Assessments, Inherently Safer Design, Toxicological Hazards, Chemical Reactivity Hazards
- Relevant Coursework: Computer Modeling Formation, Elementary Transport Phenomena, Physical Chemistry, Process Thermodynamics, Fluids and Solids Operations, Energy Transfer Operations, Chemical Kinetics and Reactor Design

Awards

- NSF Graduate Research Fellowship Awardee ***Spring 2022***
- Presidential Scholarship Recipient ***Fall 2014 – Spring 2019***
- Herbert Wertheim College of Engineering Dean's List ***Spring 2015 - Fall 2018***
- Howard Hughes Medical Institute Undergraduate Research Award ***Spring 2015 - Spring 2016***
- Anderson Award ***Spring 2016***
- Bradie Wilkins Scholarship Recipient ***Fall 2014***