AN DANG

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EDUCATION

University of Maryland, Baltimore County (UMBC) — Baltimore, MD
B.S. in Chemical Engineering, GPA 4.0/4.0 — *Expected May 2024*
Minor in Biomathematics

Montgomery College — Germantown, MD
A.S. in Biological Science and Mathematics, GPA 4.0/4.0 — *Jan 2018 - May 2020*

SKILLS

Laboratory Flow cytometry, Coatings formulation, Electrochemical Impedance Spectroscopy (EIS), Particle characterization
Software MATLAB, Microsoft Office, ASPEN Plus, Visual MINTEQ, SAS, LaTeX, Lean, Graphpad Prism
Languages Vietnamese (native), Korean (limited working proficiency)

RESEARCH EXPERIENCE

Purdue University — West Lafayette, IN
Undergraduate Research Assistant — *May 2023 – Aug 2023*

- Extracted and characterized house dust's density, morphology, and size distribution collected from urban and suburban areas.
- Conducted filter loading experiments to evaluate efficiency of MERV filters in different humidity conditions and wrote MATLAB codes to smooth pressure drop data.

University of Maryland, Baltimore County — Baltimore, MD
Undergraduate Research Assistant — *Aug 2021 - Jan 2023*

- Formalized proofs for thermodynamic gas laws in Lean, a Microsoft-developed, functional programming language.
- Created a curated list for benchmarking the parser for chemical engineering equations and visualized the knowledge graph from data retrieved from Wikidata using Pyvis and Dash.

North Dakota State University — Fargo, ND
Undergraduate Research Assistant — *May 2022 - Aug 2022*

- Formulated coatings for steel bridge application using soybean-based oil polymer, muscovite, linseed oil, and alkyd-based paint
- Performed physical tests, such as reverse impact, pencil hardness, pendulum hardness, mandrel bending, and EIS to evaluate the properties of the coatings.

University of Pennsylvania — Philadelphia, PA
Undergraduate Research Assistant — *Jul 2020 - Sep 2021*

- Analyzed the sleep/wake transition probabilities and sleep stages in mature and juvenile fruit flies with the application of investigating sleep maturation patterns.
- Identified potential genes that regulated sleep ontogeny and presented findings at the 2020 American Physician Scientists Association conference.

National Institute of Standards and Technology — Gaithersburg, MD
Research Intern — *Sep 2019 - Dec 2019*

- Developed robust measurement in cell counting for automated cell analyzers and implemented the methods in the protocol of the Cellometer Auto 2000.

- Designed, set up viability recovery and dilution fraction series experiments to assess the capability of cell counters using viability dye and spiked-in beads.

TEACHING EXPERIENCE

University of Maryland, Baltimore County — Baltimore, MD
Teaching Fellow (ENCH 225L, ENCH 425) — *Aug 2022 – Present*

- Facilitated in-class activities and review sessions to reinforce knowledge for students in Chemical Engineering Problem Solving and Experimental Design and Fluid Mechanics.
- Provided guidance during MATLAB sessions and experiment set-ups for wet labs and assessed student proficiency through exams, homework, and quizzes.

Learning Assistant (PHYS 122) — *Jan 2022 - May 2022*

- Worked with a graduate teaching assistant to guide students in Introductory Physics II during problem-solving sessions.
- Reviewed practice exercises before discussion and graded students' exams.

Montgomery College — Germantown, MD
Learning Assistant (CHEM 131) — *Jan 2020 - May 2020*

- Assisted the instructor during in-class discussions of Principles of Chemistry I to answer students' questions.
- Held office hours, mini lectures and review sessions to accommodate students outside class hours.

Student Tutor — *Aug 2018 - Dec 2020*

- Provided one-on-one tutoring to students in college-level Chemistry, Biology, Mathematics, and Physics.
- Managed the learning centers' inventory and handled calls.

ACADEMIC PROJECTS

Chemical Process Control and Safety - Penicillin Production
Derived mathematical models for the penicillin production process in the seed fermenter. Simulated and tuned the process in MATLAB and Simulink using Cohen-Coon and automated tuning methods.

Chemical Engineering Problem Solving and Experimental Design - The Effects of Fluidized Bed Characteristics on the Volumetric Flow Rate Required for Bed Fluidization
Conducted the experiments to explore the effects of loading mass, fluidizing media, and grain types on minimum volumetric flow rate required for a fluidized bed. Developed experimental procedure to effectively fluidize large grain sizes and built a multiple linear regression mathematical model to improve fit of the data.

Biomathematics - Modelling COVID-19 Spread Upon Vaccination in California and Florida
Constructed an SIRD model using differential equations in MATLAB to model COVID-19 spread upon vaccination. Investigated the relationship between factors that could affect the spread, including age, gender, and ethnicity through statistical analyses.

SELECTED HONORS AND ACTIVITIES

University of Maryland, Baltimore County — Baltimore, MD
Service Chair for the American Institute of Chemical Engineers (AIChE) — *May 2023 - Present*
Chemical, Biochemical, and Environmental Engineering (CBEE) Student Ambassador — *Aug 2021 - Present*
President's List — *2021 – Present*
Academic Achievement Award for Transfers — *2021 - 2022*

Montgomery College — Germantown, MD
Florence Muriel Ashby Mathematics Award — *2020*
Dr. Harry Harden Jr. Student Academic Excellence Award — *2019 – 2020*
Renaissance Scholars — *2019 – 2020*
Dean's List — *2018 - 2020*