

# Jesse Anderson

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## Education

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### University of Illinois at Chicago

Chicago, IL

*Bachelor of Science in Chemical Engineering*

*May 2023*

*Minor in Mathematics and Computer Science*

- Major GPA: 3.82
- Minor GPA: 3.78
- Cumulative GPA: 3.77
- Concentrations: Process Automation and Biochemical Engineering
- Relevant Mathematics and Computer Science Coursework: Data Structures, Discrete Math, Linear Algebra, Industrial Math & Computation
- Relevant Chemical Engineering Coursework: Calculus I/II/III, Differential Equations, Computational Methods in ChE, Chemical Reaction Engineering, Programming for Engineers with MATLAB

### College of DuPage

Glen Ellyn, IL

Associate's in Science

*August 2019*

- GPA: 3.64

## Research Experience

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University of Illinois at Chicago

December 2020 - June 2023

*Undergraduate Research*

Principal Investigator: [Dr. Ying Samuel Hu](#)

- Developed novel software in MATLAB, R, and Python for image and computational analysis of single molecule localization microscopy images.
- Utilized clustering algorithms (DBSCAN/OPTICS/Ripley's K) to determine spatiotemporal properties of single-molecule localizations.
- Optimized existing numerical algorithms to decrease the time it takes for a bottlenecked lab operation by 267%.

### Senior Design Project

August 2023-May 2023

Mentors: Dr. Betul Bilgin and Dennis O'Brien

Project Name: "From Waste to Wonder: Bacterial Synthesis of 1,3-Propanediol from Crude Glycerol"

- Researched the chemistry of an optimized bacterial strain, *Lactobacillus reuteri* CH53, that is capable of converting crude glycerol to 1,3-propanediol.
- Developed a quantitative model for reaction kinetics and total mass flow of reactants to achieve desired products.
- Simulated the batch and fed-batch portions (bioreactors, blending vessels) of the proposed process in SuperPro simulation software.

- Simulated the continuous portion(distillation) of the proposed process in Aspen Plus process simulation software.
- Won 1st prize at the University of Illinois at Chicago Engineering Senior Design Expo within the Chemical Engineering division.

## Work Experience

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### *UL Solutions*

June 2023-Present

#### *Engineer*

- Develop automation software in Python and VBA to eliminate 500+ hours of tedious workflows annually.
- Develop software to automatically detect changes in CAD files and alert engineers to such changes in Python using OpenCV/PyMuPDF.
- Determine project scope, preliminary plan of investigation, and project specifications to initiate technical projects in testing and verification of products to UL's standards.

### *United Conveyor Corporation*

May 2022- August 2022

#### *Summer Engineering Intern*

- Developed engineering software in VBA to automate design workflow and assist in engineering design calculations.
- Developed software to improve analysis workflow bottleneck by 540,000% by eliminating manual data entry.
- Automated 150 hours/yr of data entry, comparison and analysis tasks.
- Created and implemented a library of software tools for thermoplastic and thermoset material property analysis per ASME/AWWA/PPI standards.

### *University of Illinois at Chicago*

August 2020-December 2021

#### *Peer Leader, Calculus Based Physics*

- Ensured student success in Calculus-Based Physics (Mechanics) via one-on-one and group tutoring through online platforms (Blackboard, Zoom) with a focus on problem solving methodology.
- Developed an automated attendance analytics program to measure student attrition in Physics I.

### *G5 Environmental*

June 2016 - August 2019

#### *Safety/Project Manager*

- Served as project lead at job sites by ensuring completion of contract requirements by CDL team members.
- Ensured safe execution of any mechanical repairs by mechanics.
- Acquired parts on an as needed basis to ensure that contracts serviced did not experience time offline

## Technical Skills

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- Computational Skills: MATLAB, Python, R, C++, Julia, Java, VBA, VB.NET, SuperPro, Aspen Plus, FORTRAN, SnapGene, Power BI

## Publications

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Gunasekara, H., Perera, T., **Anderson, J.**, Saed, B., Ramseier, N., Keshta, N., & Hu, Y. S. (2023). Superresolution imaging with single-antibody labeling. *Bioconjugate Chemistry*, 34(5), 825–833. <https://doi.org/10.1021/acs.bioconjchem.3c00178>

Saed, B., Munaweera, R., **Anderson, J.** *et al.* Rapid statistical discrimination of fluorescence images of T cell receptors on immobilizing surfaces with different coating conditions. *Sci Rep* 11, 15488 (2021). <https://doi.org/10.1038/s41598-021-94730-3>

## Certifications & Specializations

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[Data Structures & Algorithms Specialization](#)

*UC San Diego*

[Google Project Management Certificate](#)

*Google*