

Zack Edds

Northbrook, Illinois

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University of Illinois Urbana-Champaign Grainger School of Engineering

Major Computer Science

Expected graduation/**Bachelor's degree in May 2026**. GPA 4.0

Oakton College, Des Plaines, Illinois – Aug. 2022 to May 2024. GPA 4.0

University of Illinois Urbana-Champaign

Undergraduate Research Assistant–Artificial Intelligence/Computer Vision June 2024 to present

Synthesized hand-object interaction under the guidance of Professor Saurabh Gupta, who specializes in computer vision, robotics, and machine learning.

- Used a transformer-based model for 3D hand reconstruction; calibrated poses to map distances using linear regression.
- Integrated accelerometer and gyroscope data to capture degrees of freedom, segmenting hand features from images to train robotic policies.

Presented research findings at the UIUC Research Symposium and participated in weekly team discussions on advancements in computer vision and machine learning.

U.S. Department of Energy - Computer Science Intern - May 2023 to August 2023

Argonne National Laboratory, Lemont, IL

Worked on the AFLEET (Alternative Fuel Life-Cycle Environmental and Economic Transportation Tool) team for the carbon emissions web app and Excel model. Built interactive **Svelte front-end** for **electric vehicle charging calculator** metrics based on an **API** call to the backend for calculations. Used **Git** to contribute code and fix bugs. Analyzed **SQL** database and wrote queries to build electrical rate tables. Found and notified the United States Utility Rate Database of a critical flaw within their database. Optimized the Excel model with advanced data validation drop down, EV charging algorithm, and data visualization.

LanzaJet Inc., Deerfield, IL – Software and Finance Intern - June 2022 to present

LanzaJet is a sustainable aviation fuel company creating jet fuel from recycled waste. Started as a summer intern, then hired to work part-time during the school year. Built **Python** program to generate jet fuel and commodity market report with **Matplotlib** charts/graphs with data from **XML based SOAP API**, **JSON based REST API**, and **web scraping with BeautifulSoup**. Shared results weekly using automated email report pipeline that I created with Microsoft SharePoint and **Power Automate**.

Automated the extraction of commodity metadata from the API, writing parameters to a **JSON** file. Wrote Python program to request the parameters, then performed data analysis with a **Pandas DataFrame**. The data is now used routinely in financial models to determine market trends.

Built refinery Sample Inventory and Lab Test management tools using **MS Power Apps**. Secure input forms interface with a **Dataverse database**. Data then feeds into **AVEVA PI Vision** or can be downloaded into Excel.

PROJECTS

Graffiti Spot App

- Developed a **SwiftUI iOS** app to catalog graffiti at UIUC
- Saved picture, name, description for each work with **SwiftData**
- Used **MapKit** to display art locations
- Swipe through all works in gallery view

Trading Paper Stock App

- Flask web app for paper trading practice
- Google Cloud Platform hosted MySQL database
- Yahoo Finance **API** for real time stock data
- Advance **SQL** queries for trading leaderboards

Relevant Classes

- **Python** based **Artificial Intelligence**
- **Java** Advanced Data Structures and Algorithms
- **C++** Data Structures
- **C++** Objects and Algorithms
- Database Systems
- Linear Algebra; Calculus III

IN HIGH SCHOOL:

Congressman Brad Schneider STEM Scholar 2019-2020

Selected to represent Glenbrook North High School in Congressman Brad Schneider's STEM Scholar program. The program is an educational opportunity that includes visits with Congressman Brad Schneider to STEM-related businesses. We participated in factory tours, discussions, and hands-on learning experiences.

STEM Center Volunteer in Northbrook Library's Collaboratory - Maker Center - June 2018 to July 2020

Volunteer in the library's STEM Center giving tours and assisting with 3D Printing, CNC machines, laser cutter, and virtual tech classes.