

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

- **Adapted a transformer** based algorithms for 3D hand reconstruction.
- Crafted and conducted experiments to **test and analyze** poses, using **linear regression** for distance mappings.
- 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 statics 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.

Led multi-functional teams in design and 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**
- **C++** Data Structures
- Database Systems
- **Java** Advanced Data Structures and Algorithms
- **C++** Objects and Algorithms
- Linear Algebra, Calculus III, Statistics

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. The most interesting factory tours included Mitsubishi Electric Automation, Clorox Company's Hidden Valley production facility among others.

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.