

# Joseph Zuber

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## OBJECTIVE

Seeking a full-time position (in-person or hybrid) as a software engineer. Willing to relocate.

## EDUCATION

**Iowa State University, Graduate College**, Ames, Iowa

Master of Science (Thesis) in Computer Engineering

Graduated May 2025

GPA: 3.96

**Iowa State University, College of Engineering**, Ames, Iowa

Bachelor of Science in Computer Engineering

Graduated with Honors May 2023

GPA: 3.89

**Iowa Valley Jr./Sr. High School**, Marengo, Iowa

Graduated May 2019

Emphasis on STEM coursework

GPA: 3.7

## EMPLOYMENT

**Iowa State University**, Ames, Iowa

*Graduate Teaching Assistant*

January 2023 – December 2024

- Received the Graduate Teaching Excellence Award in May 2024
- Taught recitation
- Taught lecture when professor was absent
- Helped students in office hours
- Graded homework

**Garmin**, Olathe, Kansas

*Software Engineering Intern*

May 2023 – August 2023

- Wrote new, and updated existing mod tests
- Worked with GUI
- Code reviews

**Open Systems International**, Medina, Minnesota

*Product Engineer*

May 2022 – January 2023

- Developed custom applications to suit user needs (in C and Python)
  - Custom applications used custom databases and displays
- Optimized and rewrote existing custom applications
- Created training materials for new hires
- Wrote product documentation
- Performed code reviews
- Developed a product for future use at the company

## SKILLS

**Languages** Spoken/Written: English (limited proficiency in both German & Spanish)

Computer (proficient): C, Python, Java, LaTeX

Computer (familiar with): Verilog, VHDL, SQL, MDX, Cypher

**Libraries** PyTorch, Transformers/HF, TensorFlow, OpenMP, MPI, OpenCV, CUDA

**Software** Git, JIRA, Visual Studio, Bullseye Coverage, Microsoft Office, Overleaf, FFmpeg

## ACTIVITIES AND LEADERSHIP

- Engineering Senator for Iowa State Student Government 2021-2022
  - Served on Finance, Civic Engagement, and Student Initiatives Committees
- Manager for Iowa State G&E Overwatch Teams 2020-23, player for Varsity Overwatch 2020-22
- ISU Honors Program
  - Conducted research as a part of the First Year Mentor Program in Spring 2020
  - Represented Starbuck House as an HSB house rep. in Spring 2021
- Founder, Player, and Manager of international organization N0tDismiss3d esports (2017-2022)
  - Scheduled practices, recruited players, conducted interviews, organized scrimmages

## PROJECTS AND PUBLICATIONS

- Published Works
  - *Enhanced Soups for Graph Neural Networks*
    - Introduced two new algorithms for model aggregation, allowing for a more parallelized training framework for Graph Neural Networks
    - The new algorithms could achieve better post-aggregation performance and in some cases could achieve that performance while also taking less time to run
    - Paper presented at GrAPL 2025 workshop, co-located with IPDPS 2025 in Milan, Italy
  - *Data and Resources for Combining Point of Interest Semantics, Locations, and Road Networks*
    - Provided resources for extracting online review information and aggregating it to Pols that are then snapped to a road network
    - Included large datasets for both New York City and Chicago
    - Paper presented at ACM SIGSPATIAL 2024 in Atlanta, GA
  - *RouteDOC: Routing with Distance, Origin and Category Constraints (Demonstration Paper)*
    - Worked on a team to develop a custom application showcasing new routing algorithms
    - Paper and application showcased at SSTD 2023 in Calgary, Alberta, Canada
  - *Enhancing Team Attendance Tracking in TBL Classes: A Comparative Study of LiDAR and Camera-based Systems*
    - Led a comparative study using neural networks to track team attendance
    - Presented at 2023 IEEE Frontiers in Education Conference (FIE) in College Station, Texas
- Other Academic Projects
  - *Model Parallelism in Graph Neural Networks*
    - Explored the use of model parallelism in GNNs to reduce single-device memory usage
    - Found that model parallelism could lead to faster performance in some cases
  - *Exploring the Use of Local Search in Political Districting and its Applications to Congressional Redistricting in the State of Iowa*
    - Explored several local search techniques in literature and their results when applied to congressional redistricting in Iowa
  - Implementation of Real-Time Scheduling Algorithms on CyBot
    - Implemented EDF and RM scheduling algorithms on a real robot vacuum
    - EDF and RM were evaluated in real life scenarios using real tasks the vacuum performed to navigate the environment
  - Mobile App Development
    - Developed two mobile apps for two different classes at Iowa State University
      - An arcade game app, developed using Dart/Flutter and deployed to both IOS and Android
      - A pet-social-network-tournament app, developed using Java/Android Studio with a Springboot backend and deployed to Android