

# Jake DePietro

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## EDUCATION

**Worcester Polytechnic Institute (WPI), Worcester, MA**

**Bachelor of Science in Computer Science, Minor in Data Science, GPA: 3.80, Graduation: May 2026**

**Courses:** Software Engineering, Data Mining, Intro to AI, Data Science I & II, Operating Systems, Algorithms

## TECHNICAL SKILLS

**Languages:** Python, Java, C/C++, JavaScript, SQL, HTML/CSS

**Frameworks & Tools:** Flask, PyTorch, Git, AWS (EC2, RDS), Linux, Docker, Nginx, Matplotlib, macOS

**Data & ML:** Machine Learning, LLMs, Model Evaluation, Data Analysis

**Concepts:** Object-Oriented Programming, Databases, Cloud Deployment, Agile/Scrum

## PROJECTS

**Major Qualifying Project (MQP), Idaho National Lab - Worcester, MA, Aug 2025 - May 2026**

- Developing 3D modeling of nuclear technology.
- Researched image stitching, computer vision, and deep learning techniques in a 4-person team.

**Ride Sharing Platform, WPI - Worcester, MA, Dec 2025**

- Contributed across the full development lifecycle of a location-based ride-sharing platform, working in a Scrum environment to create user stories, design UI mockups in Figma, and collaborate using Git.
- Implemented full-stack features using Flask and SQLAlchemy, including secure user registration and authentication, profile and ride editing, location-based filtering, automated test cases, and deployment to AWS.

**Custom char-level Transformer (PyTorch), Personal Project, Nov 2025**

- Built a small character-level language model with causal self-attention + a Transformer block; trained on a dad-jokes dataset and generated new text. Learned character encoding, embeddings, and attention.

**Network Performance Monitor Web App, Personal Project, July 2025**

- Designed and implemented a web application to track and graph router-level network performance.
- Deployed on VPS and cloud infrastructure using Flask and Plotly.

**Air Quality Prediction Model, WPI - Worcester, MA, Apr 2025**

- Collaborated in a group, cleaned data, and applied Machine Learning models using Scikit-learn to identify environmental factors that contribute to poor air quality.
- Team built regression ( $R^2 = 0.91$ ) and KNN clustering (92.1% accuracy) models to predict air quality.

**Interactive Qualifying Project (IQP), Dr. Johnson's House Museum - London, England, Oct 2024 - Mar 2025**

- Collaborated with a team to analyze visitor experiences, identifying strategies to enhance engagement and attract new, diverse audiences.
- Conducted a comparative analysis of historic house museums in London, pinpointing successful initiatives for potential integration into Dr. Johnson's offerings.
- Contributed to the collection of 150+ interviews and surveys; created a report and presentation for the curator and trustees highlighting methods to increase engagement, immersion, and inclusion.

## EXPERIENCE & PROGRAMS

**Dell Technologies STEM Aspire Program, WPI & Dell - Hopkinton, MA, Aug 2025 - Dec 2025**

- Received personalized mentorship from Dell professionals and attended workshops covering emerging technologies, technical skills, and professional development.
- Gained firsthand exposure to Dell's innovations, company culture, and industry practices through hands-on projects and networking opportunities.

**Sales Associate, Patriots Pro Shop - Foxborough, MA, Jun 2024 - Present**

- Delivered friendly customer support in a high-volume setting; managed POS and inventory systems.

**Internship, Slate Milk - Virtual, Jul 2021**

- Built formulas to clean and analyze 1K+ rows of product/shipping data; advised CEO on product strategy.

## ACTIVITIES

Historian on Alpha Phi Omega Exec Board, Member of Society of Asian Scientists and Engineers