Hektor Buqaj

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EDUCATION

UNIVERSITY OF MICHIGAN

Bachelor of Data Science in Engineering *May 2027*

- **GPA, Honors/Awards:** 3.47 | University Honors (Winter 2024), Dean's List (Winter 2024)
- **Course Highlights:** MBSE, Web Systems, Data Structures and Algorithms, Applied Regression, Linear Algebra

PROJECTS

UNIVERSITY OF MICHIGAN **Ann Arbor, MI**

GPT-2 From Scratch *September 2025 - Present*

- Built GPT-2 transformer stack in PyTorch from scratch, implementing multi-head attention and feed-forward layers.
- Replicated the original GPT-2 architecture and training pipeline to match published OpenAI design specifications.
- Trained model variants on Great Lakes GPU cluster using distributed training for large-scale datasets.
- Tuned hyperparameters to improve training stability and model scalability for billion-parameter networks.

Transformer Architecture Implementation *September 2025 – Present*

- Built modular transformer layers in PyTorch, including tokenization, positional encoding, and multi-head attention.
- Explored transformer math foundations to bridge theoretical concepts with practical implementation.
- Validated transformer outputs through experiments confirming consistency with theoretical behavior.
- Integrated all modules into a complete transformer model, demonstrating the architecture's end-to-end data flow.

M-CLOUD: Michigan-Collins Launchable Operational Utility Drone | Software *August 2025 - Present*

- Develop radio interfaces and telemetry tools to enable long-distance UAV communication.
- Implement onboard control logic and sensor integration using ROS2 and QGroundControl.
- Meet evaluation goals by Collins Aerospace on a bimonthly basis for SRR, PDR, CDR, and FRR.
- Develop software architecture and simulate flight controls to validate design before hardware integration.

Power Outage Analysis *April 2025*

- Built a learning pipeline incorporating data preprocessing, feature standardization, and regularization techniques.
- Implemented grid search cross-validation to systematically identify optimal hyperparameters across multiple models.
- Applied statistical analysis to compare performance between LASSO and Ridge regression on real-world dataset.
- Created visualization suite to interpret model coefficients and feature importance rankings.

WORK EXPERIENCE

JVIS USA, LLC **Shelby Township, MI**

Testing Engineer *May 2025 – August 2025*

- Developed and executed test plans for electronic prototypes, improving reliability by identifying faults early.
- Collaborated with cross-functional teams to troubleshoot and resolve hardware and software issues in labs.
- Analyzed test data and generated reports to support design validation and documentation.
- Utilized advanced measurement tools and equipment to ensure compliance with engineering standards.

University of Michigan **Ann Arbor, MI**

Resident Advisor (Leadership & Crisis Management) *August 2024 – December 2024*

- Fostered positive relationships with 100+ residents, promoting an inclusive and supportive community.
- Mediated resident disputes, facilitating solutions and strengthening communal harmony.
- Balanced academics and on-call duties, demonstrating strong time management and organization.
- Responded rapidly to emergencies, delivering support and coordinating with campus safety.

SKILLS

Languages: Python, C++, C#, SQL | **Tools**: scikit-learn, Pandas, NumPy, Flask, Jupyter, Git, PyTorch, Plotly, Matplotlib |
ML: Regression, Classification, Cross-Validation, EDA, Feature Engineering | **Cloud/DevOps:** AWS (basic), Docker (basic) |
Engineering: Cameo, NX, Matlab, Simulink