Edward Dwight Foster Jr.

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# Education

Indiana University, Bloomington, IN August 2022 – May 2026

*Luddy School of Informatics, Computing, and Engineering Bachelor of Science in Computer Science*

**Minors**: Business, Math, Statistics GPA: 3.79/4

Relevant Courses: Linear Algebra, Applied Algorithms, Data Modeling and Inference, Data Analysis and Mining, Artificial Intelligence

# Work Experience

# SeaTrac, Marblehead, MA May 2023 – Current

*Software and Testing Intern*

* Worked with the SeaTrac team to develop Arm versions of the boats software in C++ resulting in up to 50% power savings and increased sustainability during sea operations.
* Utilized data visualization tools and SQL querying to analyze and manage large volumes of boat data effectively, yielding valuable insights for decision-making.
* Assisted in training a yolo based object detection model using cloud-based systems and thousands of video frames captured from the boats
* Used the AWS API to manage multiple EC2 and RDS instances to ensure continuous runtimes for communication between the boats and operators

# Indiana University, Bloomington, IN September 2023 – December 2023

*Undergraduate Research Assistant*

* Collaborated with a professor, and a PhD student to develop an unsupervised model for predicting image frame representations from a simulated environment in Python.
* Trained a Variational Autoencoder to create representations of the simulated environment.
* Created a training and testing framework to feed the representations into a Reinforcement Learning algorithm and display the results.
* Implemented and tested multiple versions of Reinforcement Learning algorithms to assess their effectiveness.

# Vives School of Applied Sciences, West Flanders, Belgium May 2021 – August 2021

*Machine Learning Intern*

* Teamed up with professors on time series algorithm development, refining analytical, R and Python skills.
* Tested various time series models such as ARIMA and SARIMA as well as machine learning algorithms like RNNs, 1D CNNs, and XGBoost.
* Clearly conveyed findings and methodologies to both academic peers and faculty.

# Skills

# Languages: Python, C++, Java, SQL, JavaScript, R

# Platforms: Linux, Unix, Windows

# Libraries: Pandas, Numpy, Pytorch, LlamaCPP, Scikit-Learn, OpenCV, HuggingFace, Fast API, Flask

# Cloud: AWS, GCP, Grafana | Coding: Data Analysis, API Integration, Machine Learning

**Projects**

**Built LLM Agent for Image Manipulation**

* Integrated a Functionary v2 model with the Llama CPP API for fast inference
* Used the Florence and ESDR models to manipulate the images
* Created tool calling framework to allow the LLM to execute the models
* Used WhisperCPP for speech to text recognition
* Created a web-based UI for the Agent with Gradio