Carson Bring

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Programming Projects

- Gaussian Hidden Markov Model from scratch - github.com/carsonbring/marketmaker

  Developed a Gaussian Hidden Markov Model from scratch using PyTorch and matplotlib to predict next-day observations from hidden states. Implemented and validated the Baum-Welch algorithm for estimating transition, emission, and initial state parameters, and extended the model to handle variable-dimensional observation vectors.

- Gradient Boosting/XGBoost Marketing Budget Allocator - github.com/carsonbring/mballoc

  Built end-to-end XGBoost and Gradient Boosting pipelines to forecast ROI across multiple social media platforms. Leveraged scikit-learn, SciPy, and Optuna for parameter tuning and model selection. Performed outlier detection, imputation, and scaling, then visualized training metrics and performance trends to ensure coherent results.

- Background Mask Remover Tool - github.com/carsonbring/mask_remover

  Developed an image background remover that leverages Facebook Research's Segment Anything model to accurately detect and eliminate backgrounds from logos and images. Streamlined logo extraction and brand asset creation by automating the segmentation process, ensuring consistent and clean outputs.

Education

North Dakota State University, BS in Computer Science   Sept 2021 – Dec 2024

- GPA: 4.0 (Diploma)
- **Student Involvement:** Engineering Ambassador (2 years), Treasurer of the Association of Computing Machinery (2 years), Undergraduate Researcher under Dr. Anne Denton

Professional Experience

Software Engineer, Bring Corp – Minneapolis, MN   April 2024 – Present

- Developed a full-stack AI "Agentic Engine" that integrates graph-based Retrieval-Augmented Generation (RAG) and tools using FastAPI, React, Alembic, LangChain, Autogen, MySQL, and Neo4j.
- Orchestrated a company-wide Kubernetes cluster supporting multiple applications; implemented gRPC for service-to-service communication and built a comprehensive telemetry stack with Alloy, Grafana, Loki, and Tempo.
- Collaborated with internal teams and large external clients to securely integrate new tools into our services, ensuring clear communication and adherence to requirements.

Salesforce Developer Intern, NMDP – Minneapolis, MN   Jun 2022 - Aug 2022 and
                                                                                                                                 May 2023 - Aug 2023

- Contributed to Salesforce Health Cloud implementation by writing and maintaining Apex code (Salesforce's Java variant) for critical patient management workflows.
- Performed extensive debugging and root-cause analysis, interacting with large Salesforce databases to ensure data integrity and optimize performance.
- Gained hands-on experience in Apex development, environment management, and best practices for enterprise-scale CRM implementations.

Achievements

4th Place Digikey Programming Competition 2025

NDSU Ambassador Hammer Award Winner 2024

1st Place NDSU Byte-le Royale Programming Competition 2022