Thomas Mitchell
St. Simons Island, Georgia | (912) 689-8452 | tmitch23@nd.edu | GitHub Link: https://github.com/thomaswynnem

EDUCATION

University of Notre Dame, South Bend, Indiana   May 2027
BS in Computer Science and Mathematics   GPA: 3.80/4.00
Relevant Coursework: Fundamentals of Computing (C), Data Structures, Computer Systems, Logic Design, Scientific Computing, Introduction to Probability, Linear Algebra, Mathematical Statistics, Modern Web Development

Glynn Academy, Brunswick, Georgia   May 2023
Class Rank: 4/417   GPA: 4.60/4.00
Activities: Founder and Editor-and-Chief of Glynn Academy Gazette, Student Counsel Senator, Math Team

PROFESSIONAL EXPERIENCE

Notre Dame Center for Research Computing, Notre Dame, Indiana   August 2024 – Present
Blockchain Researcher
- Extracted data from 21,134 previous Polymarket markets from the Gamma API spanning from 2021-2024, and then filtered for 1,154 markets which were non-sport, binary events with a conclusive outcome
- Utilized frameworks such as Pandas, Seaborn, Numpy, and Jupyter Notebooks to analyze and visualize market tendencies and indicators ranging from the market category, the size of the bets, the time of the bets, the presence of whales, and early sell-offs
- Formulated binomial conditional probabilities of bettor correct rates using beta distributions and bootstrapping Monte Carlo simulations on individual bets while using the Herfindahl-Hirschman Index to run tests on monopolized markets
- Engineering a PyTorch machine learning model to take in above parameters from a 75% complete market and output a predicted result. The model accuracy is 85.54% on tests, however, new parameters will increase accuracy—a result that highlights potential vulnerabilities for Polymarket when confronted with sophisticated predictive algorithms

Data Mining Towards Decision Making Lab (DM2), Notre Dame, Indiana   February 2025 – Present
Research Assistant
- Exploring advancements in Profile-Aware Decoding and LLM Personalization from the "context-aware-decoding" GitHub repository by Xiaochuang Han
- Looking into new approaches to enhance model adaptability and user-specific responses by applying context-aware decoding to user querying on controversial/inconclusive topics
- Analyzing the noticeable response improvement in context-aware decoding models against pre-established large language models from OpenAI like GPT-4o and GPT-3.5-Turbo on 8,011 user-background/query examples from the PRISM dataset on HuggingFace

EXTRACURRICULARS / SIDE PROJECTS

Soulbound Journalism Token - Mentatz, South Bend, Indiana   June 2025 – Present
Builder
- Built an Ethereum smart-contract system to crowdsource article credibility via "inflate" (upvote) and "purge" (downvote) ETH stakes on both the article quality and flagged quotes with prediction-market style pay-outs
- Placed $20 USD participation cap on total article spending areas using a Chainlink oracle to avoid article voting market manipulation and whale betting
- Designed Z-score–based reputation metrics for journalists, aggregating global averages of likes, dislikes, fraud flags, and lazy-research flags on individual articles- automated via Gelato
- Developed a soulbound ERC-721 token (Mentatz) encoding journalist identity tags (Amateur → Goebbels) tied to on-chain performance

AWS Game Builder Challenge - Joust, St. Simons Island, Georgia   December 2024 – January 2025
Builder
- Crafted retro pixel art assets, including horses, warriors, weapons, and the arena, using Piskel tool for visual quality
- Developed Unity scenes by integrating sprites and background images to make a cohesive environment for the game
- Applied object-oriented C# scripts to the GameObjects and GameManagers to control player actions (jukes, sprints, jousts, and power-up), health-bar attributes, and scene transitions ensuring smooth gameplay

SKILLS
- Language Skills: Python, C, C#, Solidity, SQL, JavaScript, HTML, CSS
- Tools & Frameworks: AWS, Git, Linux, Pandas, PyTorch