

# Ryan M. Adolfs

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## EDUCATION

**M.S. in Computer Science**, University of Alabama, *Tuscaloosa, AL* - 3.75 GPA December 2025

**B.S. in Computer Science**, University of Alabama, *Tuscaloosa, AL* - 3.5 GPA May 2024

## EXPERIENCE

**Machine Learning Dataset Encoder**, University of Alabama Special Collections Library, *Tuscaloosa, AL* March 2025 - Present

- Engineered a Python software tool chain to process digitized newspapers to enhance searchability in a database
- Pipeline uses machine learning (ML), performs image segmentation, Json to XML transforms, and generates metadata
- Built semantic embeddings from OCR transcriptions via the OpenAI RESTful API, and used them alongside a FAISS index
- FAISS index was used to select the top subject heading candidates, sending them to OpenAI's GPT-5-nano model for processing
- OpenAI's API was used to create robust abstracts for entire issues, enhancing metadata quality

**Blackjack++** May 2024

- Built a full-stack casino web application with animated Blackjack, slots, and Roulette.
- Created backend using PHP with MySQL for database interactions and AJAX for server-client interactions.
- Created a responsive and interactive front-end using JavaScript, HTML, and CSS.
- Worked in an Agile development cycle with 4 other people. Holding weekly stand-up meetings, writing backlogs, etc.

**Teaching Assistant**, University of Alabama, *Tuscaloosa, AL* September 2023 - May 2024

- Guided students through C programming, debugging, and problem decomposition during lab.
- Delivered real-time code review and essential support to 120+ students in a weekly lab setting.

## PROJECTS

### Phishing Email Detection

- Using a dataset of 82,486 emails, trained 18 variations of NLP and ML techniques to find an optimal solution for spam detection
- Found a model that led to 14.6 and 54.3 percent less false negatives and false positives respectively compared to 2nd place model

### Baseball Q-Learning Pitch Suggester

- Trains a Q-learning agent to recommend pitch sequences to maximize a target outcome
- Scrapes Baseball Savant for extensive player data

### Probabilistic Pokemon TCG Optimizer

- Simulates turn-by-turn evolution and prize timing under real rules; outputs prize EV to compare deck slot choices.

### Rapid Literature Review: RL vs LLMs for Software Testing

- Led comparative synthesis; proposed a decision framework mapping method choice to environment dynamics, data availability, compute interpretability, and delivery timelines.

## SKILLS

**Languages** Python, C++/C, JavaScript, HTML, CSS, PHP, Java

**Tools** Git, GitHub, scikit-learn, Matplotlib, Pandas, Microsoft Office

## INVOLVEMENT

**Alabama Club Baseball** | University of Alabama | 0.332/0.501/0.973 | 6 HRs - 72 RBIs | 2021 - 2025