Ryan Adolfs
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Education

- **University of Alabama** — Tuscaloosa, AL
  Master of Science in Computer Science; GPA: 3.75 — *Aug. 2024 – Dec. 2025*
- **University of Alabama** — Tuscaloosa, AL
  Bachelor of Computer Science; GPA: 3.5 — *Aug. 2021 – May 2024*

Relevant Coursework

- **Machine Learning, Reinforcement Learning, Computational Foundations of ML, High-Performance Computing, AI, Operating Systems, DBMS, Software Security, Software Engineering, Programming Languages**

Experience

- **Special Collections Library - University of Alabama** — Tuscaloosa, AL
  Machine Learning Dataset Encoder — *Mar. 2025 - Present*
  - **Preservation Metadata Pipeline**: Engineered a Python software tool chain to process digitized Crimson-White newspapers. The pipeline included image segmentation, OCR transcription, JSON to XML transforms, and metadata generation.
  - **Embedding FAISS OpenAI API Workflow**: Built embeddings from OCR transcriptions via the OpenAI RESTful API, using those embeddings with a FAISS index to select the top-k candidates, sending those candidates to OpenAI's GPT-5-nano model to select a library of congress subject heading to assign to a segment.
- **University of Alabama** — Tuscaloosa, AL
  Teacher's Lab Assistant — *Sep 2023 - May 2024*
  - **Lab Assistance**: Guided students through C programming, debugging, and problem decomposition during lab; delivering real-time code review and essential support to students

Projects/Papers

- **Blackjack++ (Capstone) - JavaScript/HTML/CSS, PhP/MySQL, AJAX**: Built a full-featured casino web app with animated Blackjack, slots, and Roulette.
- **Phishing Email Detection - Python, scikit-learn, pandas, matplotlib**: Utilized 82,486 emails from 6 public datasets; engineered N-gram features and evaluated 18 pipelines (BoW/TF-IDF x 3 N-grams ranges x LR/RF/SVM) under an 80/20 training/testing split. The best model was TF-IDF + linear SVM + (1,2) N-gram range, reducing false negatives and false positives by 14.6 and 54.3 percent respectively vs prior research
- **Probabilistic Pokemon TCG Optimizer - Python, Monte Carlo, combinatorics, pandas/matplotlib**: Simulates turn-by-turn evolution and prize timing under real rules; outputs prive 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

Programming Skills

- **Languages**: Python, C/C++, Javascript/HTML/CSS, Java **Technologies**: Git, CUDA, Docker, scikit-learn, FAISS, REST APIs **Practices**: Agile/Scrum, debugging, unit testing, code reviews

Involvement

- **Alabama Club Baseball - 2021 - 2025**: Committed 15-20 Hours a week to practicing, playing baseball, and traveling to other schools to compete
- **Data Analytics Club - 2023 - 2024**: Worked through SQL and Python modules to learn basic skills for Data Analysis