Daniel Gross

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Education

University of Massachusetts Boston GPA: 3.0
Bachelor of Science in Computer Science *Sep. 2023 - May. 2027*
IDS Student Research Fellow @ MPSYCH Lab September 2024 – May 2025

Research

SuperDeepfakeDetector.com | *Python, PyTorch, Flask, HTML/CSS* November 2024 – Present

- Implemented a website which determines whether or not a video is a Deepfake or not.
- Uses DeepfakeBench on the backend, computing the average accuracy of the detectors given a video file.
- Provides a quick way for anyone to determine the legitimacy of a video without any commitment.
- Aims to be a platform for researchers to test deepfake detector models on the client-side.

Projects

Fitness Web App | *Python, Flask, SQLite, HTML/CSS* March 2024 – May 2024

- Developed a full-stack web application using Flask, with simple HTML/CSS as the frontend.
- Implemented a simple user login/signup feature using POST and GET requests to send data to the backend.
- Designed a simple food nutrition search, using a third party API to retrieve information about the queried item.
- Collaborated with other group members using AGILE methodologies and S.M.A.R.T. goals to speed development.

Relevant Coursework

Implementing and Securing Large Language Models | *CS478* Fall 2024

- Learned about the architecture of LLMs, tokenizers, transformers, and models such as GPT and BERT.
- Implemented a GPT model with PyTorch, utilizing a BPE tokenizer and AdamW optimizer.
- Conducted training on Nvidia A100 GPUs, tweaking and finetuning the model to optimize the model.
- Researched common adversarial attacks on LLMs, and the strategies employed to mitigate them.

Intermediate Computing with Data Structures | *CS210* Spring 2024

- Studied the design and implementations of data structures and algorithms in Java.
- Designed various data structures, including variations of Heaps, Binary Trees, Hashmaps, and Graphs.
- Implemented several algorithms, such as Binary Search, Quick Sort, Dijkstra's Shortest Path, A* Search.
- Familiarized with the concept of Object-Oriented Programming with Java.

Programming in C | *CS240* Spring 2024

- Learned the main features of C, including bitwise operations, memory allocation, and pointers.
- Implemented various data structures and algorithms in C, such as Linked Lists and Merge Sort.
- Developed C programs using structs, unions, and file pointers, in an idiomatic C way.
- Studied common security issues with C namely buffer overflows and formatting string attacks.

Work Experience

Print Production Assistant May 2021 – August 2024
Infinite Graphics Solutions *Woburn, MA*

- Prepared digital files for printing, ensuring the quality and purpose of the printed materials.
- Communicated with clients through email to devise the best solution for their printing needs.
- Managed the printing of several jobs concurrently, to maintain the highest possible output.

Technical Skills

Languages: Python, Java, C, HTML/CSS, Bash
Libraries: Flask, Jinja, Matplotlib, Numpy, Pandas, PyTorch
Developer Tools: Linux, Git, Vim