

Will Corcoran

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EDUCATION

University of California, Santa Barbara (UCSB)

Santa Barbara, CA

Master of Science in Computer Science, GPA: 4.0

Sep. 2024 - June 2026

Bachelor of Science in Computer Science, GPA: 4.0

Sep. 2022 - June 2025

RELEVANT EXPERIENCE

Software Development Engineer Intern

June 2025 – Sep. 2025

Amazon Web Services

Seattle, WA

- Elastic Container Services (ECS) team.

Undergraduate Research Assistant

Sep. 2023 – Present

UCSB, Computer Science

Santa Barbara, CA

Improving Bounds for Randomly Sampling Graph Colorings

- Work to improve $(11/6 - \epsilon)$ bound using Markov chain Monte Carlo and linear programming.

Targeted Edge Perturbations on GNNs

Talk/Poster: ERSP

- Approximate the robustness of 5 GNN architectures to edge perturbations, contrast results to adversarial attack responses.
- Evaluate the effectiveness of 4 heuristic approaches to maximize edge additions while preserving model accuracy.
- Invented a two-part greedy-primed gradient attack through analyzing graph characteristics and extensive literature reviews.

GraphEval36K: Benchmarking Reasoning of LLMs on Graph Datasets

Paper: NA ACL

- Collected 20 undirected graph problems and 160 solutions with a varying degree of difficulty and intended algorithms.
- Generated the first extensive graph dataset of 36k test cases for 12 different graph categories with NetworkX.

Undergraduate Learning Assistant

Apr. 2024 – Present

Data Structures and Algorithms, UCSB, Computer Science

Santa Barbara, CA

- Conduct office hours for over 120 students, provide support regarding homework, exams, and programming problems.
- Grade more than 1000 assignments and administer 2 exams, ensure students understand challenging concepts.

Software Engineering Intern

June 2024 – Sep. 2024

Music Audience Exchange (MAX)

Dallas, TX

- Delivered algorithms to gather and format various metadata for 1000s of artist sites into well-structured responses, improving data collection times by up to 1,500%.
- Enhanced recommendation system efficiency by 380% through profiling, statistical analysis, and intelligent approximations.
- Contributed to 15 API endpoints, including a subdomain generation tool using OpenAI's API and Cloudflare with caching for accelerated recall.
- Established a scheduling software to automate updates for 3 user-relevant datasets with queuing to minimize system stress.

Software Engineering Intern

June 2023 – Sep. 2023

Haggard Labs

Fort Worth, TX

- Optimized data writing and retrieval by up to 80% through NoSQL database management.
- Engineered secure serverless functions to retrieve financial data from external entities via RESTful APIs, leveraging Express.js, Node.js, and Firebase Cloud Functions.

PROJECTS

SpotifyGNN | Python, PyTorch Geometric, Scikit-learn, Numpy, Pandas, iGraph

Aug. 2024 – Present

- Developing instructional beginner series on graph neural networks and network analysis, focusing on classification, link prediction, clustering, and algorithms.
- Creating multiple 3000 node Spotify graph dataset and building models with PyTorch Geometric.

CXXGraph (open-source) | C++, Google Test, CMake

July 2024 – Sep. 2024

- Implementing graph algorithms (adjacency and transition matrix powers) for popular header-only C++ library.

FFRankNet | *Python, TensorFlow, Keras, Pandas, NumPy* June 2024 – July 2024

- Utilized LearningToRank, a pairwise ranking approach, through design of feedforward neural network with TensorFlow and Keras to predict upcoming fantasy football rankings using nearly 300,000 data points.

FillerAI | *TypeScript, Next.js, GitHub Actions* Sep. 2023 – Dec. 2023

- Produced an AI player for a strategy game using Minimax with Alpha-Beta pruning algorithms to make quality moves.
- Formulated specific mathematically rigorous evaluation function to quantify board states for AI player.
- Employed Next.js to develop a seamless and interactive environment, ensuring less than 1 second response from AI player.

Verde | *TypeScript, Firebase, React Native, Expo* Dec. 2022 – Mar. 2023

- Crafted a social media app, Verde, with daily environmentally-focused challenges along with photos and user interaction.
- Contributed with a team of 3 others in an Agile development process using React Native, Expo, and Firebase.
- Awarded 1st place in UCSB's Google Developers' 2023 Solution Challenge.

Startup Company Success Predictor | *Python, NumPy, Scikit-learn* Sep. 2022 – Dec. 2022

- Produced a Random Forest Classification model using Scikit-learn, NumPy, and Pandas.
- Increased accuracy by 22% over ground truth predictions with careful consideration of hyperparameters.

LEADERSHIP EXPERIENCE

Leadership Committee, CRU, Real Life Sep. 2023 – Present

- Coordinate and plan weekly events, meetings, and dinners; ensure all resources are supplied.

Independent Label Music Executive, 9929 Records Aug. 2021 – Jan. 2024

- Create, produce, and publish five albums and more than 150 songs with over 600,000 streams.
- Assess trends and data to create a marketing plan for each release and performance.

VOLUNTEERING EXPERIENCE

Middle School Math Volunteer Sep. 2022 – Present

- Led a group of five or more students down paths to accomplish classwork and review homework.

HONORS

Early Research Scholar Sep. 2023 – June 2024

Regents Scholar Sep. 2022 – Present

College of Engineering Honors Sep. 2022 – Present

Dean's Honors Sep. 2022 – Present

RELEVANT COURSEWORK

Data Structures and Algorithms, Algorithms Engineering, Machine Learning, Deep Learning, Computer Networks, Artificial Intelligence, Probability and Statistics, Linear Algebra, Multivariable Calculus, Compilers, Computer Architecture, Finite Automata, Numerical Computation, Programming Languages, Databases, Operating Systems

TECHNICAL SKILLS

Languages: Python, C++, C, TypeScript, JavaScript, OCaml, Go, Java, Rust, SQL, HTML/CSS

Frameworks: React Native, Node.js, React.js, Next.js, Django, Flask, Expo

Developer Tools: Google Cloud Platform (GCP), Cloudflare, Bash/Scripting, Git/GitHub, Docker, Postgres, NoSQL

Libraries: Scikit-learn, PyTorch, PyTorch Geometric, TensorFlow, Keras, NetworkX, Pandas, NumPy, Matplotlib

General: Machine Learning, Deep Learning, Scientific Computation, Linear Programming, Algorithms, Simulation

TALKS

Undergraduate Research Panel, UCSB ACM January 2025

ERSP Conference Lightning Talk September 2024

PUBLICATIONS

Citations (as of Mar. 2025) 7

h-index (as of Mar. 2025) 1

- [1] Qiming Wu, Zichen Chen, Will Corcoran, Misha Sra, and Ambuj K. Singh. Grapheval2000: Benchmarking and improving large language models on graph datasets, 2024.