Maxwell Chen

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Education

Northwestern University (Transfer)   Sep 2024 — June 2027
- ❖ Accelerated Computer Science Master's and Mathematics Bachelor's with 3.9 GPA on coursework Programming Languages, Computer Systems, Operating Systems, Microcontroller Systems, Algorithm Design, Machine Learning, Game Design

Vanderbilt University   Aug 2023 — May 2024
- ❖ Computer Science Bachelor's with 4.0 GPA on coursework Program Design & Data Structures, Intermediate Software Design, Computer Architecture, Discrete Structures, Multivariable Calculus & Linear Algebra, Economic Statistics

Millburn High School   Sep 2019 — June 2023
- ❖ 4.42/4.00 GPA, 1590 SAT score, 5s on 12 AP tests (Calculus BC, Chemistry, English Literature & Composition, Macro & Microeconomics, Statistics, French, Physics 1 & 2, US History, Biology, Computer Science A)

Research & Projects

Correlation-Driven Feature Extraction for S&P 500 Prediction with Machine Learning   Nov 2024 — Dec 2024
- ❖ Predicted whether S&P 500 closing prices would increase or decrease based on prior S&P 500 data in team of 5 (slides)
- ❖ Single-handedly extracted features for training resulting in ~20% neural network accuracy improvement from 56% to 73%

Stuttering Detection in Child Speech using a Deep Audio Transformer Approach   Jan 2024 — Apr 2024
- ❖ ASHA (premier speech-language conference) proposal accepted for training audio transformers to identify children who stutter and label speech disfluencies with custom dataset from Developmental Stuttering Lab (proposal, slides)

ThriftView: AI-Powered Item Classification & Inventory Management Systems for ThriftSmart   Nov 2023 — May 2024
- ❖ Prototyped website for ThriftSmart, the largest thrift store in Nashville, to identify items with Google Lens API (poster)

SURGE: Sequential Reinforcement Graph Agents for Accelerated Therapeutic Design   Jun 2022 — Nov 2023
- ❖ Designed carbon chains and drug-like, synthetically accessible molecules with reinforcement learning (proximal policy optimization, imitation learning, custom molecular environment) and graph neural networks (poster, slides)

Novel Feature Extraction & Noise Removal Techniques for Imagined Speech Decoding with Deep Learning   Sep 2021 — Mar 2022
- ❖ Classified which of 3 words subjects were thinking of based on EEG brainwaves with deep ANNs
- ❖ Achieved SOTA 53.1% accuracy with novel feature extraction and noise reduction combination (abstract, slides, poster)

Experience

Northwestern ICPC (International Collegiate Programming Contest) Championship Competitor   Sep 2024 — Present
- ❖ Member of 3-person ICPC team representing Northwestern and preparing for North American Championships

Vanderbilt Data Science Institute Engineering Manager   Jan 2024 — Apr 2024
- ❖ Managed a team of 6 (with master's students and PhDs) for speech disfluency classification with agile framework

Vanderbilt Data Science Club Engineering Manager & Lead Developer   Nov 2023 — May 2024
- ❖ Managed a team of 5 developers in partnership with ThriftSmart for inventory management with agile framework

NexGen Coding Principal AI Course Author & Instructor   Jan 2022 — Oct 2022
- ❖ Wrote curricula for and taught AI Fundamentals and AI Intermediate classes at NexGen Coding non-profit

Skills

- ❖ **Software Development** (C++, C, C#, Python, Java, SQL, Ruby, Bash, Git, algorithms, design patterns, computer systems)
- ❖ **Data Science & Machine Learning** (Python, NumPy, Pandas, SciPy, PyTorch, TensorFlow, Hugging Face libraries)
- ❖ **Web Development** (JavaScript, HTML, CSS, React, Three.js/React Three Fiber, Firebase)
- ❖ **Communication & Management** (manager at Data Science Institute & Data Science Club, agile development)

Achievements

ICPC North American Championship qualifier for placing 7th among 81 teams at Mid-Central regional competition   Nov 2024

ASHA proposal for AI speech disfluency identification accepted for presentation at December 2024 convention   Jul 2024

Perfect score on 2023 AP English Literature & Composition (1 of 2 students in the world)   Sep 2023

Crescere Aude Scholarship providing $6,000 for "immersive" studies at Vanderbilt   Sep 2023

Karen Kranz Award of $250 for brainwave decoding as "best independent project" at North Jersey Regional Science Fair   Mar 2022