

Maxwell Chen

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Education

- Northwestern University (Transfer)** Sep 2024 — June 2027
- ❖ Accelerated Computer Science Master's and Mathematics Bachelor's with 4.0 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)

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

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) 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** (Java, Python, C, C++, C#, Git, data structures, 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)