MAX L. RODRIGUEZ

Symbolic Systems AI

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CAREER SUMMARY

AI researcher and product-focused engineer specializing in machine learning, computer vision, and intelligent feedback systems. Studying Symbolic Systems (AI concentration) at Stanford University with minors in Music and German Studies. Built high-performance pipelines for fine-motor skill assessment, galaxy morphology detection, UX-sound recommendation, and social media engagement prediction. Passionate about scalable, ethical, and user-aligned AI, especially where pedagogy, music, and cognition converge.

PROFESSIONAL EXPERIENCE

Research Intern | Stanford CURIS + Algorithms for Mastodon Project | Stanford, CA
Jun 2025 – Present
• Designed a novel Gini Coefficient + KMeans data rebalancing loop, improving generalizability of ML engagement prediction model results for individual users.
• Built a GPU-accelerated PyTorch classifier using ResNet18+DINOv2 for image and MiniLM for text embeddings to predict post engagement, achieving 1.94× speedup over prior sklearn model.
• Engineered a Redis monitoring system that significantly reduced tail-latency by 8× and surfaced memory anomalies in real time.
• Developed a Torch/PIL anonymization pipeline for 100,000+ BlueSky posts with precise and scalable PII removal.
• Authored Ruby endpoints to orchestrate incremental and continuous updates to user feeds.

Chief Software Engineer & Product Strategist | Stealth Startup (Energy Beverage) | Remote
June 2025 – Present
• Developed company website with a React (TypeScript, HTML/CSS) frontend and a Django backend connected to a MySQL Oracle HeatWave database.
• Deployed web-scraping infrastructure that aggregates competitor product and branding data on a weekly cadence.
• Built Streamlit dashboards for market trend visualization, adopted by founder for pitch materials.
• Operate under NDA; focus on scalable, automated market-analysis pipelines.

Research & App-Development Intern | Technische Universität Berlin | Berlin, Germany
Jun 2024 – Sep 2024
• Created a Mahalanobis-driven UX-sound recommender with real-time query performance.
• Designed a frequency-layer watermarking tool to safeguard 2,000 licensed UX sounds from unauthorized access during testing.
• Designed and conducted a LimeSurvey user study with 1,500+ participants to inform an updated audio taxonomy.

Research Assistant | Hoover Institution | Stanford, CA
May 2023 – Jun 2024
• Analyzed Shostakovich and Wang Xilin's scores measure-by-measure to decode political subtext, 20+ hours of listening.
• Researched music as a tool of dissent, evaluating its sociopolitical impact across historical and modern contexts.
• Authored papers on how their compositions reflect and influence global political discourse.

Teaching Assistant | Department of Music – Stanford Univ. | Stanford, CA
Aug 2024 – Sep 2024
• Taught piano technique and multimedia production in an intensive undergraduate seminar (MUSIC17AX); received top course evaluations.

Kayak Instructor & Program Lead | Whidbey Island Kayaking | Langley, WA
Jun 2021 – Sep 2023
• Guided educational sea-kayaking tours with an exemplary safety record and integrated ecological lessons.

EDUCATION

Stanford University | B.S. Symbolic Systems (Artificial Intelligence)
2022 – 2026 (expected)
• Minors – Music, German Studies
• Honors Thesis – *A Temporal Modeling and Deep Learning Approach to Building an AI Feedback Tool for Classical Musicians*
• Key Coursework – Machine Learning (CS229), Deep Learning for Computer Vision (CS231N), Artificial Intelligence (CS221), Computer Vision (CS131), Algorithms (CS161), Linear Algebra & Multivariable Calculus (MATH51), Probability & Statistics (CS109)

EXPERTISE

Temporal modeling | Transformer & DETR architectures | Computer vision | Dataset curation & augmentation | Recommender systems | Ethical ML & data governance | Automation pipelines | Market & trend analytics | HCI-driven product design | Optical Flow

TECHNICAL SKILLS

Python • PyTorch • NumPy/Pandas • C++/C • SQL/MySQL • HTML/CSS/JS • Ruby • Jupyter • Cursor • GitHub • Linux CLI • Azure • Google Cloud • pgAdmin4 • OpenAI API • Bash/Shell • Adobe Premiere • Torchvision • MediaPipe • Streamlit

SELECTED PROJECTS

• **Galaxy Morphology Classifier** – Implemented a multistep DETR pipeline with DINO features; achieved **97 % accuracy** on GalaxyMNIST (10k images).
• **Pianist Skill Feedback System** – Built a two-branch CNN + HMM model delivering high macro-F1 scores and generating natural-language coaching tips.
• **UX-Sound Recommender App** – Developed a Mahalanobis distance-based recommender and Streamlit UI enabling real-time functional sound search for UX research.
• **Sound-Watermarking App** – Developed a frequency-overlay Streamlit app validated on a large-scale audio corpus.

HONORS & AWARDS

• **Stanford CURIS Fellow** (2025)
• **HSF Scholar** – Hispanic Scholarship Fund (2025)
• **Team Problem 1st Place (Division 2)** – Washington State High School Math Olympiad (2022)
• **Topical Contest 2nd Place (Division 2)** – Washington State High School Math Olympiad (2022)
• **Everett Community College Dean's List** – every quarter, 2020 – 2022
• **Charleston International Music Competition** – Prize Winner (2023)

INTERESTS

Classical piano performance | AI for art & education | Kayaking & coastal ecology | German & Spanish language learning | Early-stage product strategy & innovation