MAX L. RODRIGUEZ

Symbolic Systems AI

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CAREER SUMMARY

Stanford CS master's student and AI researcher with expertise in machine learning, computer vision, and recommender systems. Full-stack engineer with experience building scalable pipelines for motor-skill assessment, social media feed ranking, galaxy morphology detection, and UX sound recommendation. Interested in optimization and user-aligned AI at the intersection of pedagogy, music, and industry.

PROFESSIONAL EXPERIENCE

Research Assistant & AI Systems Engineer | Stanford Social Media Lab & GreenEarth Social | Stanford, CA

January 2026 – Present

• Developed social media feed-ranking algorithms to study the impact of engagement-prediction models on American political behavior.

• Designed a transformer cross-encoder with cross-attention to improve ranking accuracy over top-K results from a two-tower recommendation pipeline.

Chief Software Engineer & Product Strategist | WAW LIFE, Inc. | Stanford, CA

June 2025 – Present

• Designed and implemented a full-stack company website and delivery app with React, Node.js, and Supabase.

• 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.

Research Assistant | Stanford CURIS | Stanford, CA

Jun 2025 – August 2025

• Designed a novel Gini Coefficient + K-Means data rebalancing loop, improving generalizability of ML engagement prediction model results.

• Built a GPU-accelerated PyTorch MLP classifier using ResNet18+DINOv2 for image and MiniLM for text embeddings to predict post engagement, achieving 1.94× speedup over prior sklearn logistic regression model.

• Engineered a Redis monitoring system that surfaced memory anomalies in real-time.

• Developed a Torch/PIL anonymization pipeline for 100,000+ Bluesky posts with precise and scalable PII removal.

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.

Teaching Assistant | Department of Music – Stanford | Stanford, CA

Aug – Sep (2024 – 2025)

• Taught piano technique and multimedia production in an intensive undergraduate seminar (MUSIC17AX); received top course evaluations.

Kayak & Paddleboard Instructor | Whidbey Island Kayaking | Langley, WA

Jun – Sep (2021– 2023)

• Guided educational sea-kayaking tours with an exemplary safety record and integrated ecological lessons.

EDUCATION

Stanford University | M.S. Computer Science (Artificial Intelligence)

2025 – 2027 (expected)

Stanford University | B.S. Symbolic Systems (Artificial Intelligence), Honors

2022 – 2026 (expected)

• Minors – Music, German Studies

• Honors Thesis – *A Temporal Modeling and Deep Learning Approach to Building an AI Feedback Tool for Piano Pedagogy*

• **Key Coursework** – Machine Learning (CS229), Deep Learning for CV (CS231N), Deep Learning for NLP (CS224N), Artificial Intelligence (CS221), Applied ML (CS129), Intro to HCI (CS147), Computational Logic (CS157), Computer Vision (CS131), Algorithms (CS161), Linear Algebra & Multivariable Calculus (MATH51), Probability & Statistics (CS109), Mathematical Foundations of Computing (CS103)

TECHNICAL SKILLS

Python • PyTorch • TensorFlow • NumPy/Pandas • C++/C • SQL/MySQL • HTML/CSS/JS • Linux CLI • AWS • Google Cloud • pgAdmin4 • Adobe Premiere • Streamlit • Photoshop • Node.js

PROJECTS

• **Engagement-Based Feed Ranking** (2025-2026) – Engineered user and post embeddings, designed a novel unsupervised content-rebalancing pipeline, and trained an engagement-prediction MLP on 6M+ user–post examples achieving 0.82 AUC.

• **Galaxy Morphology Classifier** (2025) – Designed and implemented a multistep DETR pipeline with DINO feature embeds; achieved 97 % accuracy on GalaxyMNIST (10k images).

• **Honors Thesis: Intelligent Systems for Piano Pedagogy** (2026) – Developed and currently implementing a multi-stage ML system (CNN embeddings, HMM anomaly detection, Transformer) to generate actionable natural-language feedback for pianists.

• **Instilling Compact Edge NLP with Chain of Thought Reasoning** (2026) – Current CS224N project: developing pruning and decomposition methods that surpass existing baselines for compact edge NLP models.

• **UX-Sound Recommender System** (2024) – Developed a Mahalanobis, distance-based recommender and Streamlit UI enabling rapid evaluation for UX sound design research and experimentation.

• **Sound-Watermarking App** (2024) – Developed a frequency-overlay Streamlit app validated on a large-scale audio corpus.

HONORS & AWARDS

• **Best Demo** – CS147: dt + UX Awards (2025)

• **CURIS Fellow** – Stanford CURIS Fellowship Program (2025)

• **HSF Scholar** – Hispanic Scholarship Fund (2025)

• **Classical Piano 3rd Prize** – Charleston International Music Competition (2023)

• **Team Problem 1st Place** – Washington State High School Math Olympiad (2022)

• **Topical Contest 2nd Place** – Washington State High School Math Olympiad (2022)

• **Dean's List** – Everett Community College (each quarter, 2020 – 2022)

INTERESTS

Classical piano & tenor voice | AI Research | German & Spanish language learning | Start-up marketing & technical infrastructure consulting