Connor Krolls

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EDUCATION

The University of Texas at Austin Austin, TX

Bachelor of Science in Mechanical Engineering *May 2028*

- Overall GPA: 3.97/4.00
- Coursework: Multivariable Calculus, Differential Equations, Engineering Design, Thermodynamics, Statics, and Engineering Computational Methods

EXPERIENCE

Dr. Cescon Research Group, University of Houston – *Machine Learning Researcher* May 2026 – August 2026

Hired as a summer undergraduate researcher studying multivariable glucose forecasting models for patients with Type 1 diabetes under Dr. Marzia Cescon

- Built a gradient-boosted exercise detector from wearable sensor data that caught 98.5% of all episodes within 30 minutes at 0.71 false alarms per day
- Led a multi-seed replication study in Python showing headline results shrank to 20–50% of reported size, reshaping the team's evaluation methodology
- Designed and trained a dual-branch CNN-LSTM in TensorFlow/Keras, fixing gate saturation with a variance-floor regularizer (9 of 9 fits trained stably)
- Found that raw wearable sensor signals directionally outperformed hand-engineered composite biomarkers for glucose forecasting across all 67 subjects

PROJECTS

Poker AI: Opponent Modeling & Game Theory – *Project Lead; Independent* October 2026 – Present

Python and PyTorch framework that simulates poker, profiles opponents from their hand histories, and computes game-theoretic and exploitative strategies

- Built a seeded poker simulator and empirical-Bayes opponent profiler that identifies 5 player archetypes with 80% accuracy after just 44 observed hands
- Implemented CFR+ and Deep CFR game-theory solvers in PyTorch, verified against an exact LP solver and matching published equilibrium game values
- Designed a risk-aware strategy recommender that loses to equilibrium play against at most 2.7% of opponents, versus 25% for a naive best response
- Validated on 10,000 real-world hands from Facebook AI's Pluribus study; 220+ unit tests and pre-registered experiments make every result reproducible

Mood-Adaptive E-Reader – *Project Lead; Independent* August 2026 – Present

Desktop e-book reading application that classifies prose mood with a local LLM and plays a generated ambient score matched to the mood of each passage

- Built a Flutter/Dart and Python pipeline where a schema-constrained 7B LLM classifies paragraph mood, driving a generative audio model (MusicGen)
- Traced inconsistent mood labels to batch-level effects and rewrote the classification prompt, cutting the dominant mood from 82% to 47% of playback
- Offloaded audio generation to cloud GPUs with resumable jobs (about 460 runs at 1.3–1.9× local speed); traded prompt tuning for rejection sampling

TEKS Classifier – *Project Lead; Independent* September 2024 – March 2025

Python pipeline that reads Canvas lesson plans and predicts which Texas US History standards (TEKS) each one covers with a fine-tuned DistilBERT model

- Built a pipeline that pulls Canvas lesson plans and writes top-3 TEKS predictions to Google Sheets, running nightly on GitHub Actions for 7+ months
- Chose DistilBERT over Llama 3.2 1B for an 18× smaller model that runs on CPU, fine-tuned on 94 US History standards via Hugging Face AutoTrain
- Evaluated predictions against the TEKS that teachers cited in 26 real classroom lesson plans: 23% top-1 accuracy, over 10× the 2% random-guess rate

LEADERSHIP EXPERIENCE AND ACTIVITIES

Texas Aerial Robotics – *Hardware Engineer* January 2026 – Present

Selected for a competitive UT Austin robotics organization designing, building, and flying autonomous aerial vehicles for national collegiate competitions

- Design and iterate 20+ custom components including mounts, spacers, sensor housings, and structural supports in SolidWorks across 3 design cycles
- Test and optimize fabricated drone parts using finite element analysis (FEA) and tolerance stack-up analysis, reducing assembly time by roughly 40%
- Coordinate hardware-software integration by bridging cross-functional communication across all subteams to resolve engineering design challenges

Texas Society of Professional Engineers (TSPE) – *Resources Chair* September 2025 – Present

Selected to lead resource development and deployment for a professional engineering organization at UT Austin that supports over 200 student members

- Curate and distribute academic resources, scholarships, and research opportunities to 100+ active members across all engineering disciplines and majors
- Lead and manage a team of 4 students to research, source, and curate industry and academic resources aligned with member career development goals
- Redesigned, built, and published the organization's public website using WordPress and custom CSS, centralizing resources for faster member access

Alpha Kappa Psi – *Active Member; Iota Chapter* February 2026 – Present

Oldest and largest professional business fraternity in the world (founded in 1904), built on the pillars of professionalism, philanthropy, and social work

- Organized 10+ weekly professional development events, career workshops, and mock interviews connecting members with professional alumni network
- Completed 120+ community service hours across 6 initiatives, partnering with Austin-area nonprofits to help raise over $1,500 for community charities

Tutor – *Independent; Houston and Austin, TX* September 2018 – Present

Private one-on-one academic tutor serving K–12 students across Biology, Physics, Calculus, and standardized test preparation for the SAT and ACT exams

- Built and retained a client base of 40+ returning K–12 students by consistently averaging a full letter grade of improvement for each individual client
- Developed custom study guides, original practice problem sets, and visual learning aids tailored to each student's unique learning style, goals, and pace

TECHNICAL SKILLS

Languages & Tools: Python, PyTorch, TensorFlow, Keras, scikit-learn, NumPy, SciPy, pandas, Hugging Face, Ollama, Git, GitHub Actions, Dart/Flutter
Machine Learning: Deep Learning, Neural Networks (CNN, LSTM), Large Language Models (LLMs), NLP, Time-Series Forecasting, Bayesian Inference
Hardware Skills: SolidWorks CAD, Finite Element Analysis (FEA), Tolerance Stack-Up Analysis, 3D Printing, Mechanical Assembly, Iterative Design
Interests: NLH Poker, Tennis, Music Composition, Bouldering, 3x3 Rubik's Cubes, Novels, Butterfly Knives, Classical Piano, Eggs, Chess
Work Eligibility: Eligible to work in the U.S. with no restrictions or sponsorship required