

# Jasmine DeFranco

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## EDUCATION

**The University of Texas at Dallas** Bachelor of Science, Computer Science December 2025

**Relevant Coursework:** Advanced Algorithm Design & Analysis, Artificial Intelligence, Computer Architecture, Data Structures & Algorithm Analysis, Database Systems, Digital Logic & Computer Design, Engineering Projects in Community Service, Operating Systems Concepts, Probability & Statistics, Software Engineering, Systems Programming in UNIX

## TECHNICAL SKILLS & PROFICIENCIES

<b>Operating Systems:</b>	Windows	MacOS	Linux		
<b>Development Tools:</b>	Git	Postman	Docker	Figma	Jira/Agile/Scrum
<b>Programming:</b>	Python	C++/C	Java	SQL	HTML/CSS/JS/TS
<b>Analysis Skills:</b>	MS Excel	NumPy	Matplotlib	Pandas	Scikit-learn
<b>Software/Libraries:</b>	OpenCV	MongoDB	Express.js	React	Node.js
<b>Hardware/CAD:</b>	Arduino	RaspberryPi	SolidWorks	Fusion 360	

## EXPERIENCE

**Undergraduate Researcher - UTD Computer Science** May 2025 - December 2025

- Optimized entanglement-assisted quantum error correcting codes (EAQECCs) by developing a novel method to reduce entangled bits in stabilizer codes, enhancing resource efficiency.
- Formalized a mathematical conjecture into a proof, demonstrating a qubit-to-ebit transformation, preserving error correcting capabilities; presented findings at the UT Dallas SPUR Symposium (2025).

**Communications Specialist - UTD Art Sci Lab** November 2024 - December 2025

- Spearheaded marketing initiatives, data-driven proposals & digital content promoting projects, research, & events.
- Managed end-to-end event logistics, setup, execution, & post-event analysis via Meta Business Suite & Power Bi.

**SWE Intern / Early Quantum Career Immersion Program - bp / Qubit x Qubit** May 2023 - August 2023

- Explored implementations of hybrid classical-quantum solutions regarding energy optimization utilizing mixed integer programming, quadratic unconstrained binary optimization, & results generated by NISQ-era hardware.
- Collaborated across internal COE's alongside external partners discussing solutions & successful implementations of quantum, AI/LLM, & robotics products for applications of interest (e.g., energy market operation).

## LEADERSHIP EXPERIENCE

**Facilities / Maintenance Lead - UTDesign Makerspace** January 2022 - January 2025

- Oversaw maintenance & wellbeing of various equipment, tools & rooms; creation of new training, & training new members; documenting critical changes through our discord server.

**Simulation Lead - UTD AIAA / Comet Rocketry** June 2023 - June 2024

- Led flight simulation team in designing, building, & testing 2 high-powered rockets (L2 & L3), conducting 6-DOF aerodynamic simulations to optimize flight stability, performance, & safety.
- Competed in the Spaceport America Cup (10k COTS), launching & recovering the L3 rocket at near-target altitudes, achieving mission success.

## PROJECTS

**Tweet Analysis for Disaster Crisis Response (Capstone at UTD)** September 2025 - December 2025

- Developed a near real-time crisis detection system through the Bluesky API; benchmarked/fine-tuned LLMs that classified 25k+ disaster-related posts with reproducible accuracy >90%, enabling faster emergency response.
- Led data science tasks; team of 6; Jira, Next.js, React, TypeScript, Vercel, Supabase, Hugging Face, OpenAI, Qwen.

**Quantum ML for Leukemia Genomics (CS 4301-Fundamentals of Conducting Research)** Sep. 2025 - Dec. 2025

- Designed & evaluated quantum & classical machine-learning models (VQC, QSVM, SVM, MLP) via PennyLane & Qiskit to classify AML vs. ALL using high-dimensional gene-expression data.
- Demonstrated potential quantum advantages in parameter, data, & feature efficiency through rigorous benchmarking identifying cases where quantum models preserved >80% AUROC using <1% of classical model parameters.

**NASA Micro-g NEXt** January 2024 - June 2024

- Developed a Search & Rescue Platform for Optical Target Recognition (SPOTR) that utilized a custom-trained YOLO object detection model to identify items of interest for open ocean search and rescue scenarios.
- Utilized a Jetson Orin Nano, PyQT5 GUI, Yolov8 CNN.