**Arnav Verma** | Dallas, TX (Open to Relocation)
arnavv2003gmail.com | ArnavVerma@my.unt.edu | (940) 783-1887
namesarnav.vercel.app | linkedin.com/in/namesarnav | github.com/namesarnav |

## EDUCATION

**University of North Texas** — *Denton, TX*
**Bachelor of Science in Computer Science** - *Expected May 2026* **GPA: 3.60**
**Relevant Coursework: Data Structures & Algorithms** (A+), Operating Systems (A+), Artificial Intelligence (A+), **Software Engineering** (A), Database Systems (A), Machine Learning (A), **Natural Language Processing** (A+), Linear Algebra, Probability
**Affiliations:** IEEE Computer Society, UNT AI Research Program, UNT Robotics Club,
**Achievements:** Dean's List, President's List, Winner at HackSMU 23 & 24, HackUNT 23 & 24, Runner Up HackUTD 24

## TECHNICAL SKILLS

***Languages*:** **Python (Proficient)**, **Typescript (Proficient)**, C++ (Intermediate), SQL (Intermediate)
***Libraries*:** PyTorch, HuggingFace Transformers, FastAPI, Flask, React, Pandas, NumPy, Scikit-learn, TensorFlow
***Dev Tools*:** AWS, Docker, **Kubernetes**, PostgreSQL, MongoDB, Jupyter, Azure, AWS, SageMaker
**Concepts:** Machine Learning, Deep Learning, NLP, LLM Fine Tuning, Adversarial ML, MLOps, Full Stack Development

## EXPERIENCE

**University of North Texas - Denton, TX**
*Undergraduate Research Fellow* (*May 2024 - Present)*

- **Fine tuned transformer models** (BERT, Longformer, LLaMA-2, LLaMA-3) for adversarial reasoning and retrieval augmented tasks, achieving **up to 28% faster convergence** by applying **4 bit quantization and LoRA parameter efficient training**
- **Built an evaluation framework** measuring reasoning degradation under adversarial perturbations, enabling **consistent model comparison across checkpoints and architectures**.
- **Engineered scalable fine tuning pipelines** using PyTorch, Hugging Face, and PEFT with automated preprocessing, worked with multiple data formats and reproducible metric logging (accuracy, F1, recall).

**University of North Texas** - *Denton, TX*
***Teaching Assistant*** *– CSCE 4290: Natural Language Processing* (*Aug 2025 – Present)*

- Assisted professor in designing assignments, grading, and holding weekly office hours for 60+ students.
- Helped students understand concepts in **tokenization, embeddings, sequence models, and transformers**
- Built and maintained Jupyter-based lab templates demonstrating model fine-tuning using Hugging Face and PyTorch

## PROJECTS

**LLaMa FineTune** | ***Python****, PyTorch, Transformers, PEFT, BitsAndBytes* | *github.com/namesarnav/llama-finetune*

- Built a **LoRA/QLoRA fine-tuning pipeline** for Llama models on NER and text classification tasks.
- Automated preprocessing (ConLL to Parquet) and evaluation using custom metrics (accuracy, F1, recall).
- Open sourced on GitHub integrated with Hugging Face Hub for reproducible results.

**Rubik's Cube Solver** | ***C++****, Algorithm Design, Performance Optimization* | github.com/namesarnav/rubiks-cube-solver

- Designed a **state-space search engine** that computes optimal cube solutions using **Breadth-First Search (BFS)** and **A*** with heuristic cost functions, achieving near-optimal move counts across random scrambles.
- Implemented an **efficient graph-based state representation** and memory-optimized hashing scheme, improving traversal speed by **40%** compared to naïve implementations.
- Benchmarked algorithmic performance across multiple solving strategies to evaluate trade-offs between time complexity and solution optimality.

**JWT Authentication & Key Management System** | ***Node.js****, Express, SQLite, JWT, AES-256, RSA* | *github.com/namesarnav/jwks*

- Engineered a **secure key management and authentication service** supporting automated **JWT generation**, **AES-256-encrypted key storage**, and **Argon2 password hashing**, ensuring end-to-end data confidentiality.
- Developed **RESTful API endpoints** with input validation, rate-limiting, and structured logging to handle concurrent authentication requests with high throughput.
- Automated **RSA key-pair rotation and expiry tracking**, mitigating cryptographic vulnerabilities while maintaining uptime.

## LEADERSHIP

**Eagle Ambassador -** Represented UNT in campus events and outreach initiatives; assisted prospective students in orientation sessions
**Hackathons – First place** of **36 teams** at HackSMU for building a platform to help connect students with right mentors; **First Place** of **20 teams** at HackUNT for building a Payments manager app for financial literacy
**Career Readiness Peer Mentor** - Mentor students on resume building, interview preparation, and professional communication.
**Event Director, ITDS Cybersecurity Club -** Helped organize and build a team for UNT in cyber 9-12 cybersecurity competition