Dhruv Goel

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EDUCATION

University of Central Florida - Burnett Honors College — Orlando, FL
Bachelor of Science in Computer Science — *Expected May 2029*
Member: KnightHacks, Hack@UCF

Lake Nona High School — Orlando, FL
High School Diploma, GPA: 3.9 — *Graduated 2025*
- SAT Score: 1570 (800 Math, 770 Reading and Writing)
- Certifications: PCAP-31-03 (Certified Associate Python Programmer), Arifical Intelligence Scholar (Inspirit AI)

EXPERIENCE

Biomedical AI Research Assistant — April 2025 – Present
University of Central Florida — *Orlando, FL*
- Developed a **deep learning** model to predict enhancer-promoter interaction in long range DNA sequences
- Leveraged **Mamba's** selective state space design to efficiently model long-range genomic sequences and regulatory relationships across chromosomes
- Achieved SotA performance in short and long range genomic sequences, beating models like HyenaDNA and DNABERT
- Achieved **4-5%** improvement in AUROC/MCC metrics over existing models in datasets like Human OCR Ensembl and cell lines such as K562

Data Analyst Intern — June 2023 – August 2023
Vancouver Fashion Week — *Vancouver, Canada*
- Assisted in designing multimedia advertisements and graphic content, for social media campaigns, enhancing brand visibility
- Automated data collection processes using **Python** web scraping, reducing average brand research time by **30%**
- Improved **UI/UX** on company website, optimizing navigation and load speed, which increased click-through rates by **20%**
- Improved research flow within the company by developing an internal tool to streamline and record research progress

Full-Stack Developer (Freelance) — May 2025 – June 2025
LiveInStyle — *Remote*
- Built and deployed a full-stack platform for a retail business, serving **3,000+** monthly active users with **NextJS**
- Engineered a responsive frontend with admin dashboards for inventory management, order tracking, and analytics
- Integrated authentication with **Better Auth**, payment processing with **Stripe**, and **Convex** for efficient product data storage and **Upstash** for caching to retrieval speeds by **60%**
- Optimized performance, reducing load times by **35%** through caching, **CDN** image delivery, and lazy-loading techniques

PROJECTS

VeiledVoice | *Next.js, Socket.IO, tRPC, Clerk, JavaScript/TypeScript, Vercel* — January 2024
- Developed a real-time classroom engagement platform to boost student participation and engagement
- Built a full-stack Q&A system using **Next.js** for the frontend, **Socket.IO** for live interactions, **Clerk** for authentication
- Designed comprehensive admin dashboards with features like content moderation, room locking, analytics to help educators manage classroom interactions, and TTS for accessibility
- Increased student engagement by **50%** through anonymous participation features while ensuring robust security protocols and data privacy standards

AutonomyAI | *GPU Programming, Unity, NEAT, Neural Networks* — March 2025
- Developed a neuroevolutionary AI for 2D Autonomous Driving from scratch without relying on standard machine learning libraries, focusing on a custom implementation of **NEAT**
- Designed custom path editor using Bezier curves and continuity of splines for custom tracks in **Unity**
- Designed a custom **NEAT** (Neuro Evolution of Augmented Topologies) implementation with custom **backpropagation**, **gradient descent**, and activation functions
- Achieved superhuman performance on all tracks (drifting, perfect sharp corners, etc.) through generational training

TECHNICAL SKILLS

Programming Languages: C++, C, Python, JavaScript/TypeScript, C# (Unity), Java, SQL, HTML, CSS
Web Development: React/Next.js, Express, WebSockets, REST APIs, Databases (MongoDB/PostgreSQL), Authentication
AI/ML: TensorFlow/PyTorch, Genetic Algorithms, Deep Reinforcement Learning, Transfer Learning, Computer Vision
Developer Tools: Git, CI/CD, Unity, Vercel, Upstash, Supabase, Stripe, Clerk, Convex, VS Code, Neovim