Vir Malhotra

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EDUCATION

New York University Abu Dhabi, 100% Scholarship　　　　　　　　　　　　Abu Dhabi, UAE
Bachelor of Science in Computer Science, Minor in Philosophy and Music Technology　　*Aug 2022 – May 2026*

EXPERIENCE

Software Engineering Intern　　　　　　　　　　　　　　　　　　　　Jun 2025 – Aug 2025
Belvedere Trading LLC　　　　　　　　　　　　　　　　　　　　　　　　*Chicago, IL*
- Engineered formula safety validation system from scratch using advanced C++, extending trading system risk management to prevent unsafe parameter changes in production
- Architected real-time integration testing framework with TCP messaging between C++ live data capture service and Python test orchestrator, implementing protobuf serialization for market snapshots and automated dual-environment strategy comparison, reducing manual testing time by 60%
- Migrated trading system from C++ to pandas DataFrames for formula variables, enabling 50+ quantitative traders to leverage modern Python analytics while maintaining sub-millisecond performance in live trading operations
- Implemented end-to-end data pipeline processing trading parameter updates with 95%+ test coverage, integrating protocol buffers, dependency injection, and real-time market data feeds
- Became proficient in options theory through intensive study and presented project findings to 50+ engineers

Plugin Software Development Intern　　　　　　　　　　　　　　　　July 2024 – Aug 2024
PitchInnovations　　　　　　　　　　　　　　　　　　　　　　　　　　*Delhi, India*
- Completed comprehensive plugin development course curated by leading Indian musicians and music technologists
- Developed Delay and Gain Plugins using JUCE C++ Framework with intuitive GUIs designed in Figma
- Integrated plugins with major digital audio workstations including Pro Tools, Logic Pro, and Ableton Live

Data Science Intern, Product Team　　　　　　　　　　　　　　　　May 2024 – Jul 2024
FlexingIt (FT ranked 10th fastest growing startup in India 2022, 33rd in APAC)　　*Delhi, India*
- Configured GA4 data tagging and event tracking, capturing 300,000+ events from 30,000+ monthly users
- Improved algorithms for salary benchmarking tool FeeBee serving 5,000+ monthly users
- Created and presented user-friendly dashboards using Google API for data-driven decision making with executives

Research Assistant　　　　　　　　　　　　　　　　　　　　　　　Jun 2023 – Jun 2024
New York University Abu Dhabi　　　　　　　　　　　　　　　　　　　*Abu Dhabi, UAE*
- Contributed to LLM and Interactive Theorem Proving research, creating datasets for mathematical proofs
- Developed AI tool using ChatGPT API and LEAN Theorem Prover to enhance ChatGPT mathematical reasoning
- Accepted to present research at British Conference of Undergraduate Research at London School of Economics

Cybersecurity Intern　　　　　　　　　　　　　　　　　　　　　　Jun 2023 – Jul 2023
Ernst & Young　　　　　　　　　　　　　　　　　　　　　　　　　　*Delhi, India*
- Configured Active Directories on multiple Windows versions, documenting processes for internal use
- Developed and executed 10+ PowerShell scripts to enhance security protocols and completed Portswigger labs
- Participated in consulting training covering client engagement and ISO/ISA standard-based recommendations

PROJECTS

Audio Reverb Classification Model | *Python, PyTorch, CNN, Audio Synthesis, VST, Signal Processing*　　2025
- Constructed end-to-end audio ML pipeline from MIDI synthesis through VST processing to CNN classification, achieving 90%+ accuracy in reverb type identification from Mel spectrograms across 6 instrument categories
- Automated audio processing system integrating FluidSynth, professional VST plugins, and batch spectrogram generation for large-scale audio dataset creation and deep learning model training

Wings of Sound | *Python, React, Node.js, Machine Learning, Algorithm Design*　　2024
- Launched venue-finding application for artists to discover performance spaces in New York City
- Crafted React/Node.js frontend and designed database loading code for efficient venue data management
- Optimized machine learning algorithms to calculate venue match scores accurately

TECHNICAL SKILLS

Programming Languages: Python, C/C++, SQL, JavaScript, HTML/CSS, LaTeX, LEAN, Protocol Buffers
Frameworks & Libraries: React, Node.js, pandas, NumPy, Matplotlib, PyTorch, scikit-learn, JUCE, Google Cloud
Tools & Technologies: MySQL, Azure, Git, Bootstrap, VS Code, Linux (Bash), Oracle VM VirtualBox, Looker, GA4
Financial Technology: Trading Systems, Market Data Processing, Risk Management, High-Frequency Trading
Other Experiences: Branding Strategy Extern (Beats by Dre), Business Development Intern (Liwa Capital Advisors)