Tran Duc Khang

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Work Experience

Space Systems Engineer Intern | 2023–present

Aliena Pte Ltd.

Developing hardware and software for testing the Electronic Control Unit on Aliena's current Hall thruster in development.

SPhL 2024 Problem Setter | 2023–present

Singapore Physics League (SPhL)

Set and review problems for the 2024 Singapore Physics League, a national, team-based physics competition similar to Physics Brawl.

Research Mentorship Programme | 2022–2023

Singapore University of Technology and Design

Singapore Science and Engineering Fair (SSEF): *Silver*

Created hardware and software for signal noise suppression in SUTD's portable magnetic resonance imaging setup under the mentorship of Professor Huang Shaoying and her team. Research report can be found *here*

Projects

Distance-Vector Routing Simulator | 2023

NUS High School of Math and Science

A webapp that simulates the distance-vector routing algorithm for educational purposes. The webapp can be found at dvroutingsim.surge.sh.

Ok, Bloomer! | 2023

NUS High School of Math and Science

A service built using Svelte (TypeScript & SCSS) and MySQL connecting plant buyer and seller, done as part of NUS High's Introduction to Database Design module. GitHub repository can be found here *here*. Note that the website and database hosting might be defunct now.

Infinite Regress | 2021

NUS High School of Math and Science

A scalable system for graphing, clustering and multi-document summarization of academic articles. Completed as part of NUS High's Introduction to Artificial Intelligence module. Report can be found *here*. Note that the associated website is now defunct.

Education

Computer Science | 2022–2023

National University of Singapore

Grade: *A+ (CS2100); A (CS2106)*
Non-graduating student, completed CS2100 and CS2106 as part of Computer Science Honours from NUS High.

Computer Engineering 2022–2023
National University of Singapore

Grade: *A (CG1111A); A- (CG2111A)*
Non-graduating student, completed CG1111A and CG2111A as part of Engineering Honours from NUS High.

NUS High Diploma, Singapore 2020–2023
NUS High School of Math and Science

Cumulative Average Point: *4.9 (High Distinction)*
Enrolled in Year 3 (2020) under the A*Star Scholarship Grant. Graduated with honours in Engineering and Computer Science and Majors in Mathematics, Chemistry and Physics.

NUS High Physics Olympiad Team 2020–2022
NUS High School of Math and Science

Singapore International Stem Innovation Challenge (2023): *Overall Second Place*
Singapore Physics Olympiad (2022): *Gold*
Singapore Physics League (2022, 2023): *Gold*
Singapore Junior Physics Olympiad (2021): *Gold*

Technical Skills

Programming languages	HTML, CSS, SCSS, JavaScript, TypeScript, Python, C/C++, Java, Kotlin, SQL (MySQL), LaTeX
Mathematical Languages	Octave, Mathematica
Frameworks	Svelte, Flask, JavaFX, Node.JS
Developer Tools	Git, Github, VS Code, IntelliJ, Android Studio, Linux, Firebase
Libraries	Numpy, Pandas, TensorFlow, Scipy, Scikit Learn, Matplotlib
Physics	Calculus-based Classical Mechanics (Kinematics, Dynamics, Oscillation, Waves, etc...) and Electrodynamics, Thermal Physics & Statistical Mechanics, Special Relativity
Electronics	Arduino, Raspberry Pi, Digital Circuits Analysis (Nodal/Mesh Analysis, Thevenin/Norton theorem, Diodes, Op-amps, etc...), Digital Circuit Construction, Circuit Board Design in KiCAD
Computer Science	Machine Learning (in particular Natural Language Processing, Noise Cancellation, and Image-based Tasks), Computer Organization, Operating System Design, Database Management
Engineering	Signal Processing, Bare-metal Programming, Robotic Operating System (ROS)
Visual Effects	3D Modelling in Blender, Animations in After Effects, Video Editing in Premiere Pro, Photoshop

Soft Skills

Languages	English, Vietnamese both at native fluency
Leadership	Media Club Executive Committee Member, Humanitarian Education Project Leader