

## TAN XIN KAI

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### EDUCATION

<b>Nanyang Technological University</b>	<b>Aug 2020 – May 2024</b>
Bachelor of Engineering (Computer Science) with a minor in Business	Honours (Distinction), GPA: 4.20
• Specialisation: Artificial Intelligence, Cyber Security	

### WORK EXPERIENCE

<b>Multitude Insights Inc., USA / Software Engineer Intern. (BLTN backend engineer)</b>	<b>Jan 2023 – July 2023</b>
• Member of Massachusetts Institute of Technology (MIT) based public safety technology startup to build BLTN • Architected external reports management system integration, designed wireframes using Miro & implemented API integration with Python, FastAPI, Docker Compose, MongoDB and PostgreSQL, resulting in Mark43 partnership • Built a webscraper using BeautifulSoup4 to extract public servant information across 50 States and 5 territories in USA • Designed and published tech documentation for BLTN, RMS integration, SSO integration and webscraper on confluence • Python, FastAPI, React, AWS, Docker Compose, PostgreSQL, MongoDB, Alembic	
<b>YouTrip / Software Engineer Intern. (B2B YouBiz backend engineer)</b>	<b>May 2022 – Aug 2022</b>
• Worked in a SCRUM team to build version 2.0 of YouBiz portal used by businesses nationwide • Developed and debugged backend microservices for perk enhancements using Golang and Pod deployment with Kubernetes • Published onboarding tech documentation for new backend engineers independently • <u>Microservice Architecture, GoLang, Python, AWS, Kubernetes, Kafka, Elasticsearch</u>	
<b>Singapore Armed Forces (SAF) / R&amp;D Admin Support Assistant.</b>	<b>Apr 2018 – Apr 2020</b>
• Best Soldier Of the Month (2019), Platoon Best in Basic Military Training (2018)	

### PROJECTS

<b>AI-GENERATED FACE IMAGE QUALITY ASSESSMENT   Final Year Project</b>	<b>Aug 2023 – Apr 2024</b>
• Developed a new generated facial image Dataset, AGFI-500 • Designed a novel No Reference Image Quality Assessment (IQA) for image from AI-generative models, GFNR-IQA • Implemented benchmark experiment and achieved 37-35% improvement in SRCC, PLACC and KRCC against existing metrics	
<b>FIRST AR +   HoloLens Augmented Reality Medical Simulation Game</b>	<b>Jan 2024</b>
• Designed and implemented interactive UI for medical diagnosis using MRTK Toolbox for Microsoft HoloLens	
<b>DEEP NEURAL NETWORKS   Deep Neural Network Projects</b>	<b>Aug 2023</b>
• Optimised Fashion-MNIST <b>image classification</b> via deformable convolution and data augmentation with 4.6% higher accuracy • Built DNN with cross-validation and mini-batch gradient descent for <b>voice polarity detection</b> of National Speech Corpus audio • Developed <b>HDB price prediction</b> model using Pytorch Tabular for multi-categorical features and analysed with Captum	
<b>IMAGE ENHANCER   Computer Vision Projects</b>	<b>Aug 2023</b>
• Developed disparity maps with SSD computation. Implemented Canny algorithm and Hough transform for edge detection • Restored distorted images in MATLAB with contrast stretching, histogram equalization and various filtering techniques	
<b>STOCKER   Stock Prediction and Visualization Application</b>	<b>Aug 2022</b>
• Developed an LSTM-based stock market price prediction model using Python (PyTorch) and Alpha Vantage APIs • Implemented an interactive stock webapp with Python/Django, AJAX, server-side scripting and database modeling	
<b>DBMS OPTIMISATION &amp; ANNOTATION   Database Systems Management</b>	<b>Aug 2022</b>
• Optimised Data Storage Solution with B+ Tree Indexing in C++ • Implement retrieval of query execution plans (QEP) and approximate query processing (AQP) in PostgreSQL from SQL queries	
<b>STUDY BUDDY   Forum Web App Project for School Social Interactions</b>	<b>Jan 2022</b>
• Developed web forum application for school interest groups using Firebase, Express, React, Node.js (FERN) stack	
<b>AUTONOMOUS BOT   Mixed Discipline Project</b>	<b>Jan 2022</b>
• Implemented grid GUI and Bluetooth connectivity to Raspberry Pi in Java on Android studio for Samsung Tablet device	
<b>ECOMMERCE INVENTORY MANAGER   Ecommerce API Dashboard Application</b>	<b>Aug 2021</b>
• Published documentation and refactored backend API integration of Shopify inventory retrieval	

### LEADERSHIP & CO-CURRICULAR ACTIVITIES

<b>PA Youth Network / Community Service &amp; Youth outreach.</b>	<b>Apr 2020 – Present</b>
• Led comprehensive outreach programs for underprivileged youth as mentor and treasurer.	

### SKILLS / INTERESTS

**Programming:** C · C++ · C# · CSS · Go · HTML · Java · JavaScript · Matlab · Python · SQL

**Software Applications & Frameworks:** Alembic, AWS, Docker, FastAPI, Git, gRPC, Kubernetes, MongoDB, Node.js, PyTorch, React.js, Scikit-learn, SQLite, TensorFlow, Unity, Vue.js

**Online Courses:** AWS S3 Basics (Coursera), ChatGPT Prompt Engineering for Developers (DeepLearning.AI), Jira Software Fundamentals, Confluence Fundamentals, Jira Project Administrator (Atlassian University)

**Certifications:** Google Cybersecurity Certificate, New York State Assembly Certificate of Merit, HP-NTU innovation Challenge (2022) 2nd Place | **Languages:** English, Chinese