

Tan Hao Hao
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<https://gudgud96.github.io>

Education

Nanyang Technological University, Singapore

May 2019

Bachelor of Engineering in Computer Science, specialized in Artificial Intelligence

First Class Honours, CGPA: 4.91 / 5.00

Bachelor's Thesis: AI Music Composition using Deep Learning Techniques

Research Experience

Singapore University of Technology and Design (SUTD)

Aug 2019 - Present

Full Time Research Assistant with Prof. Dorien Herremans

- Project title: *aiMuVi* - **AI Music Generated from Videos**
- Working on music generation using AI based on video content and perceived emotions

Data Science and AI Research Center, NTU Singapore

Jan 2019 - May 2019

Student Research Assistant

- Developed **PlayEmo**, an education tablet application for autistic children to learn emotions utilizing face emotion detection technology
- Ideated and prototyped **AbstractGAN**, a DCGAN-based agent for generating abstract artwork

Temasek Laboratories, Singapore

Feb 2017 - Jul 2017

Research Assistant

- Project title: **Sentiment analysis on Singlish**
- Implemented a phonetic-based technique to normalize spelling variants of Singlish concepts
- Other tasks include data crowd-sourcing, web-scraping for Singlish concepts, etc.

Professional Experience

ViSenze, Singapore

Jul 2018 - Oct 2018

Software Engineering Intern

- Part of the Data Pipeline team to support data requirements for business products and model training
- Improved efficiency and robustness of Grabber, an internal high performance automated web scraper

PayPal, Singapore

Jan 2018 - Jun 2018

Software Engineering Intern

- Part of the Risk Business Obligations team to handle compliance regulations across transactions
- Revamped functional testing framework to fix critical failures and increased overall coverage across products by 200%

Teaching Experience

CZ2002 Object-Oriented Programming

Fall 2016

Peer Tutor

Object-oriented programming course for NTU undergraduates in computer science.

Programming languages covered include Java and C++.

CZ1011 Engineering Mathematics I

Spring 2016

Peer Tutor

Introductory engineering mathematics course for NTU undergraduates in computer science.

Won the Best Tutor award.

Selected Projects

AI Music Composition using Deep Learning Techniques

Aug 2018 - May 2019

Self-initiated final year project

- Proposed a chord-based generation approach for deep learning music composition using stacked Bi-LSTMs
- Presented at ICCV 2019 arts / demo session

Automated Negotiation Agents Competition

Aug 2016 - May 2017

Undergraduate Research Project

- 2nd place of the Diplomacy Game League, a strategic war board game utilizing automated negotiation
- Video presentation given at COREDEMA Workshop, IJCAI 2017

frenly™

Jan 2019

NUS Hack&Roll 2019

- Chrome extension using NLP to tackle internet toxicity by censoring mean comments, warning toxic post writers and regulating behaviours of social media users
- Winner of Top 8 Prize at this largest hackathon event in Singapore

Publications

- H. H. Tan (2019). ChordAL: A Chord-Based Approach for Music Generation using Bi-LSTMs. In *Proceedings of the 10th International Conference on Computational Creativity* (pp. 364-365).
- H. H. Tan (2017). Agent Madoff: A Heuristic-Based Negotiation Agent For The Diplomacy Strategy Game. *3rd International Workshop on Conflict Resolution in Decision Making*, IJCAI 2017.

Outreach and Leadership Experience

Vice Chairperson of NTU Piano Ensemble	2016
CUHK Chinese Debate Team (exchange student)	2017
Adjudicator of Asia Intersvarsity Chinese Debate Competition	2016 - 2017
Web Developer of 1st National Chinese Reading Competition	2015 - 2016

Computer Skills

Programming Languages

Python, Java, JavaScript, C, C#, PHP

Version Control Systems

Git (GitHub, GitLab), SVN

Development

HTML, CSS, Markdown, Flask, Unity

Research and Analytics

Tensorflow, Keras, Pandas, Scikit-learn, NLTK, music21, L^AT_EX