

# Hao Hao Tan

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## Education

2015–2019 **Nanyang Technological University, Singapore**  
**BEng. Computer Science**, focus in Artificial Intelligence | CGPA: 4.91 / 5.00

## Experience

- Aug'19–Now **Audio, Music and AI Lab, SUTD**  
*Research Assistant*  
Working on **AI music generation for videos** under Dr. Dorien Herremans.  
Applying state-of-the-art deep generative models (Transformer, VAE, GAN) to emotion-driven music generation and information retrieval.
- Jul–Oct'18 **ViSenze**  
*Software Engineering Intern*  
Enhanced internal **data pipeline** to support business requirements.  
Improved efficiency and robustness of **web scraping micro-service**.
- Jan–Jun'18 **PayPal**  
*Software Engineering Intern*  
Coded **compliance regulations** and revamped **functional testing** framework with TestNG for 2x product coverage.
- Feb–Jul'17 **Temasek Laboratories**  
*Student Research Assistant*  
Worked on **sentiment analysis in Singlish**. Built data pipelines for Singlish concepts with proposed spelling normalization algorithms.

## Publications

- 2019 **ChordAL: A Chord-Based Approach for Music Generation using Bi-LSTMs**  
*10th International Conference on Computational Creativity (ICCC), 2019*
- 2017 **Agent Madoff: A Heuristic Based Negotiation Agent For Diplomacy Game**  
*3rd Int. Workshop on Conflict Resolution in Decision Making, IJCAI 2017*

## Selected Projects

- 2019–2020 **Controllable Music Generation with High Level Feature Modelling**  
Proposed a Gaussian Mixture VAE architecture to learn low-level **latent music structure** for higher level **emotion style transfer**.
- 2018–2019 **AI Music Composition using Deep Learning** | FINAL YEAR PROJECT  
Proposed a stacked Bi-LSTM music generation system with chord conditioning for **automated music composition**.
- 2019 **frenly™** | NUS HACK&ROLL 2019 – WINNERS  
Developed a Chrome extension using NLP to **regulate social media behaviour** and tackle internet toxicity.
- 2019 **All-In-One Campus App** | NTU SCSE HACKATHON – TOP 5 FINALISTS  
Designed a mobile + web app for **integrating smart campus services**.

## Technical Skills

### Languages

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

### Machine Learning

PyTorch, TensorFlow,  
Keras, scikit-learn,  
NLTK, xgboost

### Development

HTML5, CSS3,  
Spring, Flask,  
SQL, Docker, Git

## Awards

**Best FYP Poster Prize**  
URECA 2019

**Dean's List Award**  
2015, 2016, 2018

**ASEAN Scholarship**  
2015-2018

## Co-curriculars

**NTU Piano Ensemble**  
Vice President, 2016

**8th Asia Chinese Debate Cup**  
Organizer, 2017

## Coursework

Machine Learning  
Artificial Intelligence  
Neural Networks  
Deep Learning  
Natural Language Processing  
Advanced Algorithms  
Information Retrieval  
Digital Signal Processing  
Adv. Software Engineering  
Software System Design