

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** (Transformers, 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

- 2020 **Music FaderNets: Controllable Music Generation Based On High-Level Musical Features via Low-Level Feature Modelling**
International Society of Music Information Retrieval Conference, ISMIR 2020
Proposed a latent-variable generative model to learn abstract musical representations for **controllable generation** and **style transfer**.
- 2020 **Generative Modelling for Controllable Piano Performance Audio Synthesis**
Machine Learning for Media Discovery Workshop (ML4MD), ICML 2020
Proposed a controllable synthesizer for piano performances based on GM-VAE for **gradual style morphing** and **style transfer** applications.
- 2019 **ChordAL: A Chord-Based Approach for Music Generation using Bi-LSTMs**
10th International Conference on Computational Creativity, ICC3 2019
Proposed a two-staged chord-to-note music generation system using stacked Bi-LSTM for **automated music composition**.

Selected Projects

- 2019 **frenly™** | NUS Hack&Roll 2019 – Winners
Developed a Chrome extension using **sentiment analysis** to **regulate social media behaviour** and tackle internet toxicity.
- 2017 **Agent Madoff: A Heuristic Based Negotiation Agent For Diplomacy Game**
| NTU URECA Undergraduate Research Project
Built an **automated negotiation** agent based on heuristic utility calculations to play the Diplomacy board game.

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
Executive Committee, 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