CHEN HENG-LE

Work Authorization Status: US Citizen

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# EDUCATION

**Yale-NUS College Aug 2021 - Current**

*Bachelor’s Degree (Honours), Major in Mathematical, Computational and Statistical Science*

* GPA: 4.84/5.0
* Co-Curricular Activities: Yale-NUS Hacks, Yale Swimming, NUS Pawfriends, Singapore Youth Flying Club

# PROFESSIONAL EXPERIENCE

**Research Assistant – Machine Learning in Bioinformatics** [New Haven, CT] **Sep 2023 - Current**

*Yale University*

* Worked on a project to define the roles of rare variants and, in particular, structural variants towards gene regulation using the EN-TEx personal epigenome resource.
* Modified the ENCODE ChIP-Seq pipeline to accommodate mapping to personal genomes (i.e. alt-aware mapping) and assisted in adapting the ChIP-Seq datasets for use in deep learning models to predict the regulatory effects of structural variants at a tissue and cell-type specific level.
* Participated in weekly lab meetings, presenting findings and discussing research progress, as well as providing feedback and suggestions to other members of our research team.

**Research Assistant - Blenman Innovation Group** [New Haven, CT] **May 2023** **– Aug 2023**

 *Yale University*

* Contributed to a pioneering project focused on revolutionizing omics analysis through human-computer interaction (HCI) principles.
* Developed interactive and adaptable visualizations using OCR technologies to enhance comprehensive analysis. Successfully extracted and interpreted data from multiple disease pathway diagrams.
* Led initiatives to deduce protein functions and contextual insights by employing fundamental Natural Language Processing techniques in collaboration with the National Library of Medicine.

# Student Researcher – Life Sciences/Data Analytics [Singapore] May 2022 – May 2023

*Yale-NUS College*

* Updated and restructured the Yale-NUS College Insectary Lab MySQL database to update missing data points and prevent duplication.
* Performed spectroscopy and DNA analysis on insect specimens, to explore effects of color on the sexual selection of insects.
* Collaborated with faculty members to design and execute experiments, including using molecular biology techniques such as PCR and DNA sequencing.
* Wrote Python and R scripts to visualize spectroscopy, PCR and DNA data via graphs.

# SOFTWARE PROJECTS

**Sentiment Analysis Bot** [Singapore] **Sep 2022 – Oct 2022**

*Yale-NUS College*

* Developed a sentiment analysis bot using TensorFlow to predict movie review ratings, which was trained on over 50,000 movie reviews and corresponding ratings.
* Implemented several deep learning architectures, including recurrent neural networks (RNNs) and long short-term memory (LSTM) networks, and compared their performance to select the best model.
* Deployed the model as a Telegram bot, allowing users to input their own movie reviews and receive a prediction of the rating in real-time.

**Godot 2D Platformer Project** [Singapore] **Jan 2023 – May 2023**

*Yale-NUS College*

* Developed an intricate 2D platformer game using Godot 4, drawing inspiration from popular titles like "Celeste" to provide a captivating gameplay experience.
* Implemented advanced AI algorithms for dynamic enemy behaviors that adapt and react to player movements, enhancing the gameplay's depth and challenge.