Irwin Tay

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Personal Website
Jurong West, Singapore / Ravensburger Ring, Munich, Germany

EDUCATION

National University of Singapore — Singapore
Bachelor of Science in Physics (Honours), Minor in Medical Physics, — *Aug. 2019 – June 2023*
Specialisation in Astrophysics

Anglo-Chinese Junior College — Singapore
GCE A-Level, A for both H2 Physics and H2 Mathematics — *Jan. 2015 – Dec. 2016*

Hua Yi Secondary School — Singapore
GCE O-Level, 7As, L1R5:8 — *Jan. 2011 – Dec. 2014*

EXPERIENCE

Bachelor's Thesis — Aug. 2022 – June 2023
National University of Singapore — *Singapore*
- Conducted research on gravitational wave analysis using machine learning techniques under A/Prof Alvin Chua
- Testing various analysing techniques such as interpolation and poly-fitting
- By using blackhole perturbation theory, successfully modelled a trivial case of gravitational waveforms, through the use of deep neural network, interpolation and polynomial fitting, produced by a special binary system.
- Potentially integrating the model into a Python Package (FastEMRIWaveforms - FEW)

Tutor — Apr. 2019 – Dec. 2022
Happy Tutors Learning Centre — *Singapore*
- Physics and Mathematics tutor who taught from Secondary to Junior College level
- Successfully helped students improve their grades and helping them to enter the top Junior College in Singapore

3rd Sergeant (3SG) — Jan. 2017 – Jan. 2019
Republic of Singapore Air Force (RSAF) — *Singapore*
- Served in the 505SQN of Air Civil Engineering Squadron
- Served as the Guard of Honour for the Air Force contingent in the 2018 National Day Parade for Singapore's 53rd birthday

Student Researcher — Dec. 2015 – July 2016
*Agency for Science, Technology and Research (A*STAR)* — *Singapore*
- Worked under a mentor's guidance on a project titled 'Adaptive UI for Enhanced Music Experience'
- Conducted focus group studies as well as literature reviews to discover a user interface for a music playback application that personalises the experience for each user based on their listening habits, emotions and preferences.
- Cultivated Swift programming language via Xcode to develop a prototype of the application
- Presented research findings at the 2016 AHFE conference in Florida, USA

CERTIFICATE

CS50AI: CS50's Introduction to Artificial Intelligence with Python | edX — July 2022
Decentralised Finance (DeFi) Infrastructure | Coursera — June 2022
Introduction to Data Science in Python | Coursera — June 2022
Introduction to Structured Query Language (SQL) | Coursera — May 2022

ACHIEVEMENT

Boon Lay Community Service Book Prize 2020 | People's Association — 2020
A*STAR Science Award (Junior College) | A*STAR — 2015
Bronze Award | Singapore Mathematical Olympiad (Senior Section) — 2013
Honourable Mention | Singapore Mathematical Olympiad (Junior Section) — 2012
Grade 3 Violin | The Associated Board of the Royal Schools of Music — 2016

Publication

Tay, Irwin and Swee Lan See (2017). "Adaptive UI for Enhanced Music Experience". In: *Advances in Affective and Pleasurable Design.* Ed. by WonJoon Chung and Cliff Sungsoo Shin. Cham: Springer International Publishing, pp. 105–115. ISBN: 978-3-319-41661-8. URL: https://doi.org/10.1007/978-3-319-41661-8_11.

Technical Skills

Languages:Python, LaTeX, SQL (MAMP), Swift, Markdown, Lua, C++, HTML, CSS
Developer Tools: Git, VS Code, Vim, NeoVim
Softwares: Mathematica, Matlab, Maple, Origin, SRIM & TRIM
Libraries: pandas, NumPy, Matplotlib, Tensorflow, Keras, FEW, Scipy, scikit-learn

Volunteering & Co-Curricular Activities

Boon Lay Community Service (Meet the People Session)	Jan. 2020 – Dec. 2020
NUS Physics Society Event's Vice Director	2022 – 2023
NUS Physics Society Orientation Camp Committee - Programs Head	2022
NUS Physics Society Orientation Camp Leader	2020
NUS Esports @ NUS E-Gaming, School Team 2 for Valorant	2020–2021
NUS Physics Society Marketing Director	2019 –2020
ACSian Theatre, Sound Designer/Tech Crew	2015 –2016
Vice Captain of Basketball School Team (2012), Basketball School Team	2011 –2016