**Ng Zhen Hao**

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### EDUCATION

**Singapore University of Technology and Design (SUTD) Singapore**

* Bachelor of Engineering (Engineering Systems and Design) **May 18 to Aug 21**
* Expected Minor: Information Systems Technology and Design Minor
* CGPA (as of May 2021): 4.45

### ACADEMIC PROJECTS

**Singapore University of Technology and Design Singapore**

**Data Engineer, AI for Healthcare Jan 21 to Apr 21**

* Designed and developed a Content-based Image Retrieval System using Python’s PyTorch library to identify if a medication is similar to any medication in the database in order to reduce confusion during the procurement process.
* Cleaned the images by training a yolov5 object detection model to identify and crop out strips from each image.
* Prepared the dataset for labelling by grouping the images with similar colour histograms using OpenCV in Python.

**Singapore University of Technology and Design Singapore**

**Backend Developer, Simulation Modelling and Analysis Sep 20 to Dec 20**

* Initiated and led discussions to plan features for the agent-based simulation of the operations of a conveyor belt sushi restaurant to understand how should supply meet demand, using an iDef0 diagram.
* Developed a project schedule with Excel to ensure that deadlines were followed and assigned roles for each team member.
* Programmed an agent-based simulation for the operations of a conveyor belt sushi restaurant using JavaScript which served as the foundation for others to build on, and programmed a module to download simulation data for data analysis.

**Singapore University of Technology and Design Singapore**

**Data Analyst, The Analytics Edge Sep 20 to Dec 20**

* Applied text processing methods and statistical and machine learning techniques such as classification trees and deep learning in R to analyze sentiment with regards to weather in an in-class Kaggle competition which scored 87% on the test dataset.
* Organized the processes and workflows of how the model building process can be improved, and delegated tasks to team members to maximize the improvement in our validation score.
* Communicated the shortcomings and strengths for our data analytics pipeline through a written report.

**Singapore University of Technology and Design Singapore**

**Data Engineer, Computational Data Science Sep 20 to Dec 20**

* Implemented a data science pipeline to detect depression from tweets from Twitter to improve its diagnosis.
* Collected one million tweet data using Python and Tweepy API by stratified sampling which was required for data analysis and visualization.
* Visualized text and user data using Python’s graphing libraries (e.g. Seaborn and Wordcloud) to gather insights about differences between depressed and non-depressed users.

### WORK EXPERIENCES

**Ministry of Home Affairs Singapore**

**Datahub Division, Data Analyst Dec 20 to Jan 21**

* Visualized temporal-geospatial transportation data using Python’s folium library on an animated choropleth map to understand the dynamics of urban transport within 5 weeks.
* Presented the results to 2 colleagues and 2 managers, which received positive response for achieving one of the many goals in their project.

**Senoko Energy Pte. Ltd. Singapore**

**Digital Information Technology (DIT), Special Projects Intern May 20 to Sep 20**

* Programmed, debugged and updated a data entry form using Excel Visual Basic and Applications for lead engineers to collect data on inventory tools which would be uploaded onto SAP to improve the management of inventory of the power plant.
* Designed and improved the form based on empathizing with the user’s needs and through soliciting feedback from them.
* Communicated the instructions of how to use the application through documenting the software as well as conducting 4 technical workshops to supervisors and lead engineers, which resulted in a reduction of workload by 20%.

### Singapore Armed Forces Singapore

**39th Battalion Singapore Combat Engineers, Chemical, Biological and Radiological Defence Pioneer Apr 16 to Nov 17**

* Underwent training to respond to chemical, biological and radiological threats in Singapore’s key installations.
* Secured and checked areas for any terrorist threats like explosives that undermine national security during national events like the National Day Parade and National Day Rallies.
* One of the 20 selected from a pool of 60 people to attain a rank of Corporal First Class

### COMPETITIONS

**Shopee Code League 2021 Singapore**

**Data Scientist (Natural Language Processing) Mar 21 to Mar 21**

* Researched statistical and deep learning models for an entity detection task on Indonesian text to extract street names and points of interest information from the text.
* Cleaned text with regular expressions and performed data visualization with Python for preliminary data analysis.
* Developed a pipeline with preprocessing, a conditional random field model and data post-processing using Python’s sklearn and pandas libraries which came in top 23% of 505 participants in the student category.

### CO-CURRICULAR ACTIVITIES

**Singapore University of Technology and Design Singapore**

**Undergraduate Research Opportunities Programme, Mathematical Modelling Jan 20 to Mar 20**

* Analyzed and researched models for surface tension for an international Math Modelling Competition (MCM) with 16000 participants within 72 hours to build a mathematical model for a sandcastle to maximize its durability, which was awarded a successful submission and would have been an honorable mention as remarked by my mentor.

**Singapore University of Technology and Design Singapore**

**Advanced Math II, Undergraduate Teaching Assistant Sep 19 to Dec 19**

* Facilitated a cohort class of 50 and a help session class of about 25 students every week to explain mathematics concepts and problem-solving techniques to them.
* Graded and gave feedback to students about their homework and projects.

### ADDITIONAL INFORMATION

* Technical Skills: Adobe Premiere Pro, MS Excel, VBA, Python, SQL, R, JavaScript
* Hard Skills: Mathematics, Research and Writing Skills
* Soft Skills: Teamwork, Active Listening, Adaptable, Learning skills
* Fluent in English and Mandarin
* Enjoys science and mathematics