

**NANYANG
TECHNOLOGICAL
UNIVERSITY**

SINGAPORE

Proposal for QMePIs

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Team Titans
School of Computer Science and Engineering, NTU

Submitted to—
Nanyang Technological University
School of Computer Science and Engineering

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Executive Summary

Many of us have been in a scenario where we feel completely sick or ill, knowing that we would need to go to a clinic urgently but dreading the waiting times, sitting at the clinic in discomfort.

Our application aims to breach the gap between this waiting time and the unknown factor of which clinic we should go to depending on the queue. Introducing “QMePls”, an application where users are able to check waiting times at nearby clinics, book queue slots and further input relevant symptoms as a log for doctors to see. This acts as an end-to-end application from the booking up to the process of specifying the details of our symptoms to the doctor.

Our target audiences are Singaporeans who are too sick to queue for long periods of time, or people who embrace convenience and efficiency. Furthermore, this applies to most clinics during this COVID-19 period where the number of people in a small waiting space is limited.

Statement of Problem

Waiting times at clinics are increasing, especially with the additional precautions that are being taken due to COVID-19 where a clinic in Sengkang has an average waiting time of 86 minutes 95% of the time. (Statista, 2021)

When waiting times are over an hour, it could be too much of a discomfort for patients. Being able to book a queue slot beforehand or checking the current queue status would bring about convenience and extra comfort for people.

Objectives

Our application fulfils the following objectives:

- Allow users to check current waiting times for nearby clinics.
- Provides a booking functionality for users to pre-book their slots and come just before their allocated turn.
- Includes a log for users to input their symptoms to specify details for the doctor's information.

Technical Approach

The product will be built using Android Studios with Java programming language and requires integration of existing APIs like Google Maps, Google Firebase and Google Firestore. Our application can run on Android devices (preferably Samsung phones) with Android 10 and above.

Needs of Customers

1. Usability: The application's functionalities should be easy to use and navigate around
2. Responsivity: The application should respond to user's requests with negligible time difference
3. Accuracy: The tracking of user's live location should be accurately reflected on Google Maps
4. Security: The application should only allow authorised users to access the application

Target Specifications

1. Usability: All functionalities will be labelled with universal icons, together with supporting text
2. Responsivity: Each function should take no more than 2 seconds to respond based on user input
3. Accuracy: The live location of the user should be updated every 1 second
4. Security: A login account consisting of username and password should be required to access the user's profile

Technology Consideration

Frontend: Android Studios

We chose Android Studios as the frontend development software based on the past experiences that our team members have as well as the availability of a Graphical User Interface. It also has a built-in Gradle system to help with dependency management.

Backend: Google Cloud Platform using Firebase & Firestore

We decided to use Firestore as it provides us with a real-time database platform with its own database management API. It also provides us with many other services which will be useful for the development process and interaction between the frontend and backend.

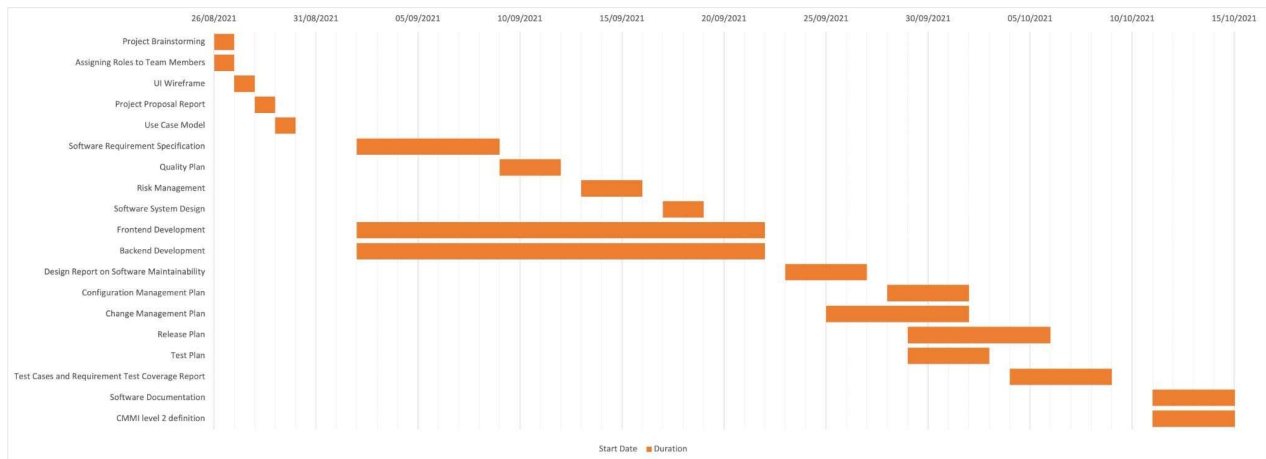
System Architecture Platform

Given that Java will be the main programming language and Firestore is being used as our database coupled with a Google Cloud for our backend, we will be using a layered architecture structure. This ensures low-coupling between the layers and ease of modification by adding or removing classes when retrieving data from Firestore API and Google Cloud APIs. It uses object-oriented principles like Single Responsibility Principle (SRP) and Modularity to allow reusability and isolated systems for developmental and testing purposes.

The 3 layered unidirectional flow starts with the **Presentation layer** which consists of UIs, activities and fragments such as xml files. This layer is also in charge of receiving user inputs such as search location inputs and user-click buttons. **App Logic layer** is then called to manage the application logic classes to process the user inputs of navigation with google maps or searching the disease symptom filebank. Finally calling the **Persistent Data layer** which

contains the Firestore csv files regarding diseases information and ranking of importance. Everything is systematically following the downward vertical stack layers and this makes our functions less dependent and less prone to conflicting errors.

Project Management



Deliverables

The following table provides a detailed description of the deliverables the project team will be providing and the target time of completion.

| Deliverables | Target Time | Description |
|------------------------------------|-------------------|---|
| Software Requirement Specification | 9 September 2021 | Based on the use case models, the document specifies the main purpose and direction of the system. It also lists the critical constraints, high-level functional requirements and non-functional requirements of the system and major features of the system. |
| Quality Plan | 21 September 2021 | Quality assurance plan and practices on different stages of the development lifecycle. |
| Risk Management | 22 September 2021 | Identification of possible risks during the project development, and the risk management strategies. |
| Software Prototype | 23 September 2021 | A prototype system that contains all the proposed features and functions. |

| | | |
|---|-----------------|---|
| Design Report on Software Maintainability | 2 October 2021 | A report explaining the maintainability of the design of the system. |
| Configuration Management Plan | 3 October 2021 | Policies for configuration management measurements and activities, method of use of various tools and |
| Change Management Plan | 4 October 2021 | Setting the baseline for the project and listing of roles and procedures for change management |
| Release Plan | 19 October 2021 | Plan for iterative release phases. |
| Test Plan | 19 October 2021 | Documentation of functional test, non-functional test, system test, user acceptance test. |
| Test Cases and Requirement Test Coverage Report | 20 October 2021 | List of all the test cases using Black Box techniques, specifying the test steps including input parameters, operations to perform and expected output. |
| Software Documentation | 21 October 2021 | Documentation containing the software architecture design, API design and database design. |
| CMMI level 2 definition | 21 October 2021 | Definition of four process areas: Requirement analysis, quality assurance, project planning and configuration management. |

Budget

Project resources and budget are necessary in project management for success and completion of a project. Budgeting prevents unnecessary costs and allows correct allocation of costs.

The project budgets will be used for the following categories:

Personnel: Regardless of the scale or complexity of a project, humans play a significant part in the development process. A team of specialists is required to complete a task effectively and efficiently, thus a portion of the budget will be spent on the wages of the project manager and project team members.

Equipment: Equipment such as machines are essential for a project to run smoothly and efficiently.

Technologies: Ready software services like Google Maps Services are key to speed up and aid in the software development process.

Utility Costs: Project team members would be more driven and productive with a conducive working environment. A conducive working environment is accompanied by motivated team members meeting the development timeline.

The table below demonstrates the 2-month project budget breakdown in Singapore Dollar (SGD):

| Category | Item | Supplier | Quantity | Unit Price | Total |
|---------------|----------------------|---------------|----------|----------------------|---------------------|
| Personnel | Project Manager | N.A | 1 | \$30,000.00 | \$30,000.00 |
| | Project Team Members | | 5 | \$3,000.00 | \$15,000.00 |
| Equipment | Computers | Dell | 6 | \$1,500.00 | \$9,000.00 |
| Technologies | Google Maps Services | Google | - | \$350.00 per month | \$700.00 (2 months) |
| | Google Play Services | Google | 1 | \$33.65 | \$33.65 |
| Utility Costs | Office Rental | NTU | 1 | \$6,000.00 per month | \$6,000.00 |
| | Transportation | ComfortDelgro | 1 | \$1,000.00 | \$1,000.00 |
| Total | | | | | \$61,733.65 |

Communication and Coordination with Sponsor

The project manager is responsible for setting up communication and coordination with the sponsors. Communication will be scheduled as a weekly conference call or visit, if necessary. Meetings will commence on 26 August 2021 and will last for 8 weeks, which is the duration of the project.

Before each meeting, the project manager will email sponsors a file containing the completed weekly deliverables which they can use as a reference on the progress of the project.

In each meeting, the project manager will update the sponsors with the project progress and address any queries they might have. The project manager may report requests to sponsors if the sponsor's response is required.

After each meeting, the project manager will collate feedback and concerns from sponsors and disseminate to all team members.

Team Qualifications

Our team is formed by a group of Computer Science majors from Nanyang Technological University (NTU). In the 2021 QS World University Ranking, NTU is ranked 3rd in Asia (QS Quacquarelli Symonds Limited, 2021) and is also ranked the world's best young university in 2021 (*NTU Is the World's Best Young University*, 2021). Being offered a rigorous balance of theory and practice, encompassing a solid broad-based foundation and an in-depth understanding of selected specialisations, each team member is well-equipped with knowledge in the field of Software Engineering. Moreover, with the experience of working on multiple software development projects, each member is well aware of the relevant project management techniques. Hence, the team is qualified to take on this project.

Below shows the qualifications of each team member:

Aloysius Seow is a penultimate student at the school of Computer Science in NTU. He has particular interests in Game Developing/Designing, front-end development & is currently focusing on Cyber Security and Artificial Intelligence. He has experience in Java, C, C#, Python, HTML & Javascript. He has completed an internship as a Quality Assurance Engineer and was involved in several academic projects as well as his own personal projects.

Jacob Law is a penultimate student at the school of Computer Science in NTU. He has particular interests in IoT, Big Data and Cloud Computing Software development. He is currently focusing on Artificial Intelligence and Data Science and Analytics. He has experience in Java, C, C#, Python HTML & Javascript. He has completed an internship as a Software Developer/ DevOps Engineer and was involved in several academic projects as well as personal projects.

Jolene Tan is a third year Computer Science student from NTU. She is interested in cyber security and Artificial Intelligence and enjoys developing web and mobile applications. She has experience in programming in Java, C/C++, Python, HTML & CSS, Dart and knowledge in MySQL and Google Cloud Computing. She has completed several software projects both in and out of school, finishing first runner-up in SMU LIT Hackathon, a technology competition.

Soh Qian Yi is a third year Computer Science undergraduate in NTU. She has a keen interest in frontend development, data analytics, as well as UI/UX. She is currently focusing on Data Science and Cyber Security. She has experience in programming in Python, Java, MySQL and C/C++. She has completed an internship as a Data Analyst and has also completed several projects in school.

Samuel Lee is a penultimate student at the school of Computer Science in NTU. He has particular interests in Analytics, Machine Learning & BackEnd Software Development. He is currently focusing on Machine Learning & Analytics. He has experience in Java, C, C#, Python

& C++. He has completed an internship as a Software Developer and was involved in several academic projects as well as personal projects.

Zeta Chua is a year 3 undergraduate Computer Science in NTU. She is interested in UI/UX, frontend development, and XR - AR/VR. She is currently focused on Computer Vision, learning the backend of the XR technologies and prototyping XR applications. She has experience in Java, C/C#/C++, Python, HTML CSS JS, Google Cloud Computing. She has completed several internships as a UI/UX prototyper, frontend developer and Research Assistant roles for XR in NTU and A*star-ARTC.

References

Statista. (2021, April 1). *Statista*. Waiting time for consultation in polyclinics in Singapore as of

February 2021, by polyclinic. <https://www.statista.com/statistics/874609/waiting-time-for-consultation-in-polyclinics-singapore/>

QS Quacquarelli Symonds Limited. (2021). *Asia*. Discover the top universities in Asia with the

QS Asia University Rankings 2021. Retrieved 8 29, 2021, from

<https://www.topuniversities.com/university-rankings/asian-university-rankings/2021>

NTU is the world's best young university. (2021, Jun 23). NTU is the world's best young

university. Retrieved 8 29, 2021, from <https://www.ntu.edu.sg/news/detail/ntu-is-the-world-s-best-young-university>

Appendix A: Résumés of Team Members

The following pages present one-page résumés of the team members for this project.

Aloysius Seow

Aloysius Seow

Penultimate Student

Software Engineer/Game Design & Testing enthusiast

aloyusseow456@gmail.com ✉

+6598475067 📞

Singapore, Singapore 📍

linkedin.com/in/aloyusius-seow in

github.com/aloybol 🔗

EDUCATION

Bachelor of Computer Science Nanyang Technological University (NTU)

08/2019 - 08/2023

Expected Honors (Distinction),
CGPA: 4.3/5.0

WORK EXPERIENCE

Quality Assurance Engineer (Intern) Millennium Capital Management

05/2021 - 07/2021

Singapore

Achievements/Tasks

- Given two projects to work with Goldman Sachs & JP Morgan
- Conducted automation testing on new software based on broker's requirement
- Broker's new trading requirements released to the market/production

Merchant Deployer (Contract Job) Grab Pte Ltd

05/2019 - 07/2019

Singapore

Achievements/Tasks

- Involved in getting new GrabFood merchants onboard with the company
- Provided basic training for merchants
- Experienced working and communicating with different stakeholders

Air Force Technician (Weapon Specialist) Republic of Singapore Airforce (RSAF)

05/2017 - 02/2019

Singapore

Achievements/Tasks

- In charge of maintaining integrity of the Aircraft Weapon Systems
- Conducted daily maintenance and operational tasks in a team
- Chosen to participate in multi-national military exercises in Australia & Thailand

SKILLS

Unity Android Studios C# C Python
Java Inquisitive Good Communicator
Teamplayer FIX Protocol HTML CSS
Javascript

PROJECTS

Unity 2D Game - Monster Chase (07/2021 - 08/2021)

- Created a simple 2D Game using Unity & C#
- Further developed interest & understanding in 'Game Design', strengthened C# scripting skills

Unity 3D Game - Box Shooter (05/2020 - 06/2020)

- Developed a basic 3D shooting game through an online course, using Unity 3D & C#
- Obtained basic knowledge of Unity 3D functionalities & C# skills

MozzyShield Application (01/2021 - 04/2021)

- Developed an Android application that displays dengue clusters in Singapore with live location tracking, symptom checkers and alert systems using Java
- Strengthened Java Programming Skills & Android Studios functionalities

CERTIFICATES

Intro to User Experience Design

-Smartcademy

Intro to Game Design

-Michigan State University

Intro to HTML

-University of Michigan

Intro to CSS

-University of Michigan

LANGUAGES

English

Full Professional Proficiency

Chinese

Professional Working Proficiency

INTERESTS

Dancing Investments Hiking Sports
Virtual/Augmented Reality Gaming Game Design

Jacob Law Zhen

JACOB LAW ZHEN

(65) 86607856 • jacoblawzhen@gmail.com • Singaporean

EXECUTIVE SUMMARY

- Passionate in solving problems using technology and hence fascinated by the idea of being a contributor to the fourth industrial revolution.
- Python • C, C# • Java • React-Native • Unity • Android Studios • SQL • OOP • JavaScript • Jupyter • TensorFlow • Firebase • C++ • Spring/ Spring-Boot • Thymeleaf • Html • CSS • Docker • Kong API Gateway • JMS • SolaceMQ
- Simple React-native Pomodoro Application • Android Studios Food Recognition/Calorie tracking Application • Unity Multiplayer Educational Game • Course Registration System • Spring Boot Microservice.

MAJOR ACHIEVEMENTS INCLUDE:

- Developed a Microservice which handles JMS/ JSON Requests and Responses from Merchant Simulator to SolaceMQ Broker for MVI Technologies during internship, as well as deployed a API Gateway in front of the service for admission and authentication of clients.

PROFESSIONAL EXPERIENCE:

- Software Developer / DevOps Engineer at MVI Technologies ([s](#)) Jun 2021 – Aug 2021
Established CI/CD pipeline for automated building and testing using Jenkins. Developed a (RESTful) Microservice using Spring Boot. Developed A Merchant Simulator, Using Html and CSS, that integrated the aforementioned service. Deployed an API Gateway in front of Microservice using Kong API (enabling CORS, Hmac authentication, RSA Authentication). Dockerized the Spring Boot Application and Kong API Gateway. Managed by team lead using Agile and Scrum Methodologies.

KEY SKILLS:

- Unity Android Studios • Jupyter • OOP • Software Development Life Cycle / Agile (Scrum) Methodologies • JavaScript, Java, Python, C, C#, C++ • Spring / Spring Boot • Docker / Containerized Services • API Management / Gateway deployment • Html / CSS • RESTful Service

EDUCATION AND PROFESSIONAL QUALIFICATIONS / CERTIFICATIONS

Nanyang Technological University Computer Science

- 2019-2023

Ngee Ann Polytechnic

- 2015-2017

Jolene Tan

Jolene Tan

Email: jolenetan07@gmail.com | Mobile: +65 8321 0630

EDUCATION

| | |
|--|--------------------------------|
| Nanyang Technological University, Singapore <ul style="list-style-type: none">Bachelor of Engineering (Computer Science), Honors (Expected) | 2019 to 2023 (expected) |
| Nanyang Junior College, Singapore <ul style="list-style-type: none">Singapore-Cambridge General Certificate of Education (Advanced Level) | 2017 to 2018 |

PROJECTS

| | |
|---|-------------|
| SMU LIT Hackathon 2021, Singapore Luman, Android/iOS mobile application <ul style="list-style-type: none">1st runner-up, Invited to speak at TechLaw.Fest 2021Developed a mobile application in Flutter (Dart) targeting psychological health of lawyersFeatures include – classic snake game, interactive chatbot to navigate app, login, logout, signup, in-app forum allowing user to post, edit and reply to posts anonymouslyMade use of Firebase services, DialogFlow API and Google Cloud Computing services | 2021 |
| Nanyang Technological University, Singapore Mozzyshield, Android mobile application <ul style="list-style-type: none">Developed a mobile application in Android Studios (Java) targeting dengueFeatures include – viewing of dengue clusters and clinic information on map, getting nearest 1-4 clinics based on current location, dengue symptom checker, search bar functionMade use of Realtime government-provided data, Google Maps API and Google Cloud Computing servicesProjected documented in an SRS which included various diagrams such as Use Case Model | 2021 |

WORK EXPERIENCES

| | |
|--|-----------------------------|
| Panasonic Singapore, Singapore Data Analyst <ul style="list-style-type: none">Collecting and interpreting data on human facial expressionsUsing collected to perform analysis on human behaviorRecording findings on Excel and reporting results back to relevant personalsWorking alongside research team to develop software on attention span | Feb 2019 to Mar 2019 |
|--|-----------------------------|

SKILLS

- Programming Languages:** Java, C, C++, Python, HTML, CSS, SQL, Dart
- Miscellaneous:** Microsoft Office, Git, Google Cloud Computing Services
- Languages:** Proficient in English and Chinese, Basic Korean Conversational and Writing

CO-CURRICULAR ACTIVITIES

| | |
|---|---------------------|
| Nanyang Technological University, Singapore Logistics Sub-Committee Member, School of Computer Science and Engineering | 2020 to 2021 |
| Nanyang Technological University, Singapore Euphonium Section Member, NTU Symphonic Band | 2019 to 2021 |
| Nanyang Junior College, Singapore Quarter Master, NYJC Hanja (Korean Cultural Club) | 2017 to 2018 |
| Nanyang Junior College, Singapore Euphonium Section Leader, NYJC Symphonic Band | 2017 to 2018 |

SAMUEL LEE

www.linkedin.com/in/samuel-lee-170984120

Contact No: 97814300 | Email: samuellee1312@gmail.com

EDUCATION

2019 TO PRESENT

BACHELOR'S IN COMPUTER SCIENCE

NANYANG TECHNOLOGICAL UNIVERSITY, SINGAPORE

- Current CGPA: 4.07/5.00

2014 - 2017

DIPLOMA WITH MERIT IN BUSINESS INTELLIGENCE AND ANALYTICS

TEMASEK POLYTECHNIC, SINGAPORE

- CGPA: 3.83/4
- Director's List (Academic Year 2015/2016)
- TP-VCE Scholarship (2014-2017)

WORK EXPERIENCE

LTA AUTONOMOUS VEHICLE PROJECT OFFICE (AVPO) | MAY 2021 – AUGUST 2021

ANALYTICS & RESEARCH INTERN

- Built a Tableau dashboard on the autonomous vehicle trials for monitoring and data analytics.
- Extracted important features from autonomous vehicle logs and cleaned them into structured text & csv files using python.
- Developed a teaching material for the Vocational License Department on Advanced Driver Assistance Systems.
- Performed research on vehicle communication technologies along with the recommendations for Singapore's future steps in this area.
- Revise data collection elements that is being used for autonomous vehicle progress checking & incident investigation.

CARE CORNER PROJECT START | MAY 2019 – DEC 2020

PART TIME SOFTWARE AND DATABASE ENGINEER

- Eased staff workflow by automating reports and Excel summaries through VBA.
- Managed and spearheaded a data migration team to transition to a new salesforce database.
- Mapped out and planned the process of data transfer and data organization for a seamless transition.

HITACHI ASIA LTD | JULY 2016 - FEBURARY 2017

RESEARCH INTERN

- Developed a CCTV video analytics application to track a given human or vehicle image.
- Developed the front-end application using Java and the backend algorithms using C++ and Python.
- Extracted and engineered image features using RGB, HSV and Edge methods.
- Performed object detection and image classification using Support Vector Machines.
- Built Haar Classifiers to perform object detection.
- Performed incremental clustering to group similar images.

SKILLS AND CERTIFICATIONS

Languages: Proficient in English and Chinese.

Digital skills: C++, C#, C, Python, MATLAB, Java, Javascript, HTML, R, VBA, Qlikview, Microsoft Office, Tableau

Certifications: Bloomberg Junior Achievement Workplace Mentoring, SAS Predictive Modeler using SAS Enterprise Miner 13

Soh Qian Yi

Soh Qian Yi

Phone: +65 9072 2239 | Email: qianyisoh@gmail.com
LinkedIn: [linkedin.com/in/sohqianyi](https://www.linkedin.com/in/sohqianyi) | GitHub: github.com/qysoh
Availability: December 2021 to August 2022

EDUCATION

Nanyang Technological University (NTU) Aug 2019 – Jun 2023
Bachelor of Engineering (Major in Computer Science with a Minor in Modern Languages)

- CGPA (4.24/5.00)
- Expected Completion of Degree: June 2023

Noteworthy coursework:

- Software Engineering
- Human Computer Interaction
- Introduction to Data Science & A.I
- Object Oriented Design & Programming
- Algorithms
- Introduction to Databases

Serangoon Junior College Jan 2017 – Dec 2018

- General Certificate of Education Advanced Level
- College Ambassador 2018
- Student Volunteer to Cambodia (SRGCE) - Organized activities and taught underprivileged children life skills and basic English

WORK EXPERIENCE

TES – Sustainable Technology Solutions May 2021 - Aug 2021
Summer Analyst and Developer Intern

- Planned and developed PowerBI dashboards for over 40 facilities worldwide and consolidated business requirements from business owners
- Utilized Amazon Web Service (AWS) to improve the process of data preparation and to provide end-to-end data extraction from the company database to the PowerBI dashboard
- Designed wireframes and prototypes for an in-house upcoming ERP system

GOJEK Singapore Jan 2019 - Mar 2019
Escalation Team - Customer Service

- Resolved critical issues and customer service cases and solved all backlogs using Salesforce
- Managed customers and driver-partner's feedback by liaising between both parties
- Provided superior customer service by addressing all questions and concerns

CO-CURRICULAR ACTIVITIES

Hall of Residence 9 Table Tennis Dec 2019 – Aug 2021
Team Captain

- Managed a team of 35, organizing inter-hall games and trials to select prospective members and handled administration matters

SCSE Virtual Freshmen Orientation Camp Jun 2020 – Aug 2020
Orientation Group Leader

- Planned ice-breaking games and facilitated virtual camp for 70 freshmen to encourage bonding and integration into new environment

Photographic Society, Serangoon Junior College Jan 2017 – Apr 2018

- Photographed school key events for student body
- Selected to participate in Schools Digital Media Awards 2017
- Volunteered at 'My First Skool' to teach students basic photography skills

SKILLS

-
- Digital Skills: Python, C, Java, C++, MySQL, Figma, PowerBI, Amazon Web Service (AWS)
 - Languages: Proficient in English and Chinese, conversant in Korean

Zeta Chua

Zeta Chua

UI/UX Designer
AR/VR enthusiast

✉ zetachua246@gmail.com
🌐 [personal-website](#)
🌐 [linkedin.com/in/zeta-chua](https://www.linkedin.com/in/zeta-chua)
🐙 github.com/zetachua
☎ +65 90288713

EDUCATION

Computer Science Undergraduate Y3

Nanyang Technological University
2019- May 2023

A Levels

St. Andrews Junior College
2017- Dec 2018

PROJECTS

UX Case Study Mixed Reality

Bootcamp
Aug 2021

Heritage Game Jam

Unity
Aug 2020

Java Dengue Clinic App

Java, Android Studios
May 2021

Blender Tree Modelling

Blender
May 2021

React-native Pomodoro App

React-native
May 2021

SKILLS

UI/UX

Interviews
High Fidelity Prototyping
User Journey Map

Programming

Unity3D
Java
React-native, Angular.js
HTML/CSS/JS
Github
Python
Google Cloud

Tools

Figma
Blender, Adobe Illustrator
Miro, Invision
Visual Studio Code
Android Studio

EXPERIENCE

A*Star Research Attachment XR

Aug 2021- present

UI/UX• Node.js • Unity

NTU Garage@EEE Unity developer, Hiverlab partner

Aug 2021- present

VR See eye to eye project, creating VR solutions for VI (visually impaired)

serl.io Mixed reality intern, serl.io

May 2021- Aug 2021

Angular.js• Angular Material • Redesign prototype • Microsoft Hololens •

[UX Case Study published on Bootcamp](#)

Development, design, testing of Mixed Reality apps and simulations,
Research and Development, Website design/update or development
+ Improved client learning curve by 62.5% to use the application

NTU Research Assistant Tree modelling

Feb 2021- May 2021

Blender (Sapling tree generator), Unity

Explored Singapore Tree Modelling like the tree Lee Kuan Yew planted,
African Mahogany for an AR application for NLB and NTU collaboration
project under Professor Cai Yu

Web Design and Development Intern, Webpuppies

June 2020- Aug 2020

WordPress (Divi Theme) • HTML/CSS • HIFI prototypes on Figma

Key clients: Breadtalk Group, Neo Group Limited.

UX Designer Intern, Indielab

May 2020- June 2020

UX Research • Wireframing • Prototyping • Interviews • Surveys •

Personas • Customer journey maps

Targetted at Singapore's creative market and overseas Creative

Individuals via discord channel of 100 members and website beta launch