Tzu-Yu Ma

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EDUCATION

University of Minnesota, Twin Cities — **Minneapolis, MN**
Master of Science in Geographic Information Science (GIS) — Sep 2022 – 2024

Chung Cheng Institute of Technology (CCIT), National Defense University — **Taoyuan, Taiwan**
Bachelor of Aerospace and Mechanical Engineering — ~~Jun~~ Sep 2014 – Jun 2018
- ~~Relevant Coursework: Introduction to Programming Languages, Material Lab, Programming Design~~

WORKING & PROFESSIONAL EXPERIENCE

Graduate Research Assistant — **Minneapolis, MN**
- U-Spatial: AFRICOM bases flooding assessment — Jan – Aug 2024
  Responsibilities: Data wrangling, cartography, and data analysis.
- Division of Environmental Health Sciences: Investigation of Infection Transmission in the Context of Floods in Colombia
  Responsibilities: Data wrangling, cartography, and flood assessment.

2023 Esri User Conference Student Assistant — **San Diego, California**
- Supporting the setup, teardown, and every task in between the whole event, — Jul 2023
  includes Event Support, Technical Equipment Support, Venue Setup,
  Registration and Check-in . ~~— Jul 2023~~

Geographic Information Science Student Organization (GISSO) — **Minneapolis, MN**
- Communication officer in GISSO, handle all communication-related tasks, — Sep 2023 – 2024
  includes Internal and External Communication, Social Media Management,
  Event Planning, etc)~~.~~ ~~Sep 2023 – 2024~~
  ~~Holding events (GIS day, GIS career fair… etc) in the University of Minnesota.~~

Materiel Production Center, Armaments Bureau, Ministry of National Defense
Taichung, Taiwan
~~First Lieutenant~~Captain, Cartographic and Surveying Officer
— Jul 2018 – ~~Present~~ 2023

Leading 16 employees in project to draw military topographic maps
- Used ArcGIS to produce a total of 408 topographic maps of Taiwan in scale 1/25,000, 1/50,000, and 1/100,000; produced disaster prevention and relief maps for emergency response crews to use and completed the map's coverage of all cities and counties in Taiwan
- ~~Adapted~~ downsizing technology ~~to~~Designed database and ~~maintained each scale database~~ data representation with downsizing technology for each scale, plan~~ed~~ning layers, setting overlay rules, and determin~~ing~~ed the most suitable projection coordinates according to different map types to achieve optimal aesthetic and practical qualities
- ~~Constructed modules with Model Builder to~~ and set tool parameters; ~~processed complex steps with SQL language to improve the work efficiency of draftsmen and reduce errors~~
- ~~Completed basic database vectors and attributes for Taiwan's terrain, transportation, buildings, public utilities, etc.; maintained and updated database for military use; o~~Opened the National Land Surveying and Mapping Center online for public downloading and use

Project Manager — Jan 2021– ~~Present~~2022

Leading a six-person R&D team to develop a map format compatible to specific ~~weapon~~ systems
- Analyzed Vector Product Format (VPF) files obtained from abroad based on ~~military~~ guidelines to test geodatabase, shapefile, and coverage files, and determined each file type's readability ~~(分析方式?分析內容?分析OOXX??)，根據軍用規範，分別測試geodatabase、shapefile、coverage等不同檔案，找出系統讀取之格式~~

~~Used ArcGIS's built-in module to convert the format into a geodatabase and built a database with the editing function to produce map data needed for weapon systems.~~

~~OOXX武器系統使用。~~

CONFERENCE PARTICIPATION
- ~~Student Esri User Conference 2023~~
- ~~MN GIS/LIS 2022~~

RELEVANT COURSES
■ Spatial Data Science~~,~~ ■ ~~Advanced~~ Geocomputing ~~,~~ArcGIS I, ■ WebGIS and Services~~,~~ ■ Spatial Database Design~~,~~ ■ Project Management~~,~~ ■ Principles of GIS~~;~~ ■ Principles of Cartography

~~Instructor and Protocol Officer~~ ~~Jul 2018 – Present~~
- ~~Handled annual training, solved problems faced by draftsmen using software, and improved production line drafting technology~~
- ~~Received VIP guests from domestic military and foreign nationals; introduced the production line operation process~~

PROJECT at CCIT

Six-Wheeled Disaster-Reconnaissance Robot **Taoyuan, Taiwan**

Developed a robot that can enter narrow spaces to conduct disaster surveys Jun 2016 – Jun 2018 *and ensure the safety of disaster relief personnel as a response to Taiwan's frequent earthquake disaster nature* ~~Member in Team of Six幾人小組? 組長? **6人小組，執行組員**~~ ~~Jun 2016 – Jun 2018~~

~~*Developed A a robot that can enter narrow spaces to conduct disaster surveys and ensure the safety of disaster relief personnel as a response to Taiwan's frequent earthquake disaster nature*~~

- Won the department's Award of Excellence and Award of Best Application Value
- ~~Developed a small, lightweight, modularized 6-wheeled car-shaped robot that can climb and turn, equipped with a camera lens and forward lights; it remote controlled and able to enter small areas with ability to send back real time images~~

~~## EXTRACURRICULAR ACTIVITIES at CCIT~~
- ~~Played as a flutist in military band from 2014 to 2018 and won 4th place for the Northern Region in the National College Music Competition 2016 年分 *2016*~~
- ~~Managed department club as vice president and led in 全國大專院校航太工程系運動競賽 National College of OOXX Aerospace Engineering Sports contests from 2017 to 2018,~~
- ~~Managed Oversaw and planned the details of institute all clubs activities at the institute as administration team leader and organized annual dance parties, graduation activities, and festivals from 2016 to 2017~~

CERTIFICATES

~~**Ministry of Labor**~~ ~~**Taoyuan, Taiwan**~~
- Class C ~~skill~~ Skill ~~category~~ Category for Aircraft Maintenance issued by Ministry of Labor May 2018