

NICHOLAS KO

Singapore | nicholas.ko.zy@outlook.com | nicholas-ko-zy.github.io

EXPERIENCE

DSO NATIONAL LABORATORIES

Operations Research Analyst

Singapore

Aug 2024 – Present

- Modelling and optimisation for highly classified military problems.
- Developed discrete event simulations in Python.

PROJECTS

Open Source Vehicle Routing Solver

May 2025 – Present

- Built a vehicle routing web application to solve and visualize the Vehicle Routing Problem (VRP).
- Achieved routing results for 30 locations and a fleet of 4 vehicles within ~5 seconds.
- Implemented using Django, Leaflet, Open Source Routing Machine (OSRM), Google OR-Tools, and Nominatim.
- Current work in progress: Scaling up the fleet size and order of visit per route.
- Link to repo: https://github.com/nicholas-ko-zy/django_map

Past Experience

ADATOS

Singapore

Geospatial Analyst Intern

May 2023 – Jul 2023

- Worked in the agriculture-tech team to process and analyse satellite (multispectral/SAR) images using Python and QGIS.
- Implemented image segmentation algorithms in Python and QGIS for automated land use/land cover classification, significantly improving efficiency for the team's classification workflow.
- Used Python to analyze and simulate financial scenarios in Excel, aiding a new company's fundraising efforts with worst-case, base-case, and best-case financial projections

YALE-NUS COLLEGE

Singapore

Research Assistant

May 2021 - Jul 2021

- Researched under Assoc. Professor Michiel van Breugel to perform exploratory data analysis on mangrove tree data collected from Pulau Ubin; Aimed to test if ground elevation and species abundance could predict mangrove diversity in research plots.
- Analysed mangrove forest dataset of 5000+ plants planted on land previously used for shrimp farming.
- Constructed visualisations in Rstudio.

EDUCATION

YALE-NUS COLLEGE

Singapore

B.S. Mathematical, Computational and Statistical Sciences (Data Science Track)

2020 - 2024

- GPA: 4.35/5.00
- Coursework: Stochastic Processes, Graph Theory, Finite Geometry, Generalised Linear Models, Statistical Inference, Probability, Linear Algebra, Data Structures and Algorithms.

ADDITIONAL INFORMATION

- Languages: English (native), Cantonese (conversational)
- Programming Languages: Python, R
- Software: QGIS
- Personal Website: <https://nicholas-ko-zy.github.io/>
- Technical Blog: <https://nicholas-ko-zy.github.io/blog>
- Github: <https://github.com/nicholas-ko-zy>
- LinkedIn: <https://www.linkedin.com/in/nicholas-ko-zy>