Theo Obadiah TEGUH

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EDUCATION

University of Hong Kong Sep 2021 - May 2025

Double Major in Computer Science, Bachelor of Economics and Finance *Hong Kong*

- **CGPA:** 3.64/4.30 *(First Class Honours)*
- **Awards and Honours:** Dean's Honours List (2021-2023), HKU Full-Tuition Entrance Scholarship (2021-2025), Chan Tat Chee Memorial Education Abroad Scholarship (2023-2024).
- **Relevant Coursework:** Advanced Econometrics, Causal Inference, Statistical Inference, Data Science and Engineering, Relational Databases, Data Structures and Algorithms, Portfolio Theory, Financial Derivatives, Game Theory, Linear Algebra.

University of British Columbia Jan 2024 - Apr 2024

Bachelor of Commerce, Exchange Semester, ***GPA:*** *80% (First Class)* *Vancouver, Canada*

SKILLS

- Programming Languages : *Python, R, C, C++, SQL, Bash*
- Development and Documentation : *Git, GitLab CI, GDB, Valgrind, LaTeX, Markdown, Notion*
- Data Science and Engineering : *Python (Pandas, NumPy, scikit-learn, ElementTree, Matplotlib), R (Tidyverse)*
- Cloud and Deployment : *Amazon Web Services (RDS, S3, EC2, Route 53, CloudFront), Caddy*
- Miscellaneous : *Agile, CI/CD, Software Development Life Cycle, Bloomberg Terminal*
- Languages : *Indonesian (Native), English (Native), Mandarin (Limited Proficiency)*

WORK EXPERIENCE

Data Scientist | *Oxbridge Economics, LLC* - Hong Kong Jul 2024 - Present

- Designed a **k-means stratified sampling algorithm** and a **machine learning pipeline** with **Python Pandas** and **NumPy** based on a 56 GB United States national geospatial data set as well as Landsat-9 and Sentinel-2 satellite imagery.
- Achieved a minimum standard of 70% confidence and a 10% error margin with **power analysis**, indicating that 70% of the time, an interval with a width of 20% catches the estimated parameter, demonstrating its industry-level predictive accuracy.
- Spearheaded research on **mathematical optimization** of the sampling algorithm with tools such as the simulated annealing **Monte Carlo** hill-climbing method and the cross entropy or Kullback-Leibler divergence formula.
- Conducted feature selection of geospatial covariates with 10 Extreme Gradient Boosting (XGB) **machine learning** models in **Python**, and conducted **k-fold cross-validation** and **Bayesian hyper-parameter tuning**.

DevOps Engineer | *Vancouver School of Economics at UBC* - Canada Mar 2024 - Apr 2024

- Automated the **CI/CD pipeline** with **Bash** and **GitLab CI** to ensure mitigate the risk of developer error across repositories.
- Decreased average **software deployment** time by 16% via implementing recursive synchronisation of project directories.
- Tasked with managing and cleaning **GitLab** repositories in a teaching project of up to 38 contributors. *(View Project)*

Programming Teaching Assistant | *Department of Computer Science at HKU* - Hong Kong Aug 2023 - Dec 2023

- Co-led two tutorial lecture sessions consisting of over 30 students and supervised an exam of over 350 participants.
- Taught topics include **Python** programming fundamentals such as functions, data structures, recursions, and file I/O.

Data Engineer | *Faculty of Business and Economics at HKU* - Hong Kong Jun 2023 - Sep 2023

- Developed an automated **ETL pipeline** in **Python**, with libraries such as **NumPy**, **Pandas,** and **ElementTree** to process a purchased 35 GB **Morningstar** international bond holdings **XML** data package. *(View Project)*
- Obtained a 95% overall data pipeline speed improvement, reaching top download speeds of 13 MBps.
- Administered and hosted an **Amazon Web Services RDS MySQL** instance to load the parsed data.
- Conducted visualisation of the United States' short and long-term treasury bill rates with the **R Tidyverse** package.

PROJECTS

Carhalla: A Large-Scale Parking Management System *(View Project)*

- Designed an entity-relationship model and a MySQL database for a large-scale parking company, hosted on an RDS server, connected to a Node.js API. Deployed the site with an EC2 Ubuntu Linux instance and utilised Route 53 for DNS routing.
- **Tools and Concepts:** *SQL, Amazon Web Services (RDS, EC2, Route 53), Software Development and Database Design*

CousCous: A Causal Inference Cookbook in R *(View Project)*

- Authored an econometrics textbook based on HKU's undergraduate ECON3284 Causal Inference course. Covered empirical methods such as simple and multiple linear regression, randomised controlled trials, and instrumental variables.
- **Tools and Concepts:** *Applied Econometrics and Empirical Methods, Statistical Inference, R Tidyverse, LaTeX*

MiniTest Automated Testing Module *(View Project)*

- Engineered a shell script that takes module tests as input, streamlining unit testing, and compiling for C/C++ programs.
- **Tools and Concepts:** *Bash, UNIX/Linux Operating Systems, Automation*

COMMUNITY SERVICE

Student Associate, Bridges International | International Christian NGO for community outreach. Aug 2021 - Present

Director of Finance, BantuYuk! Foundation | Indonesian NGO for socio-economic empowerment. Jul 2022 - Feb 2023