Hei Yin Kyle Chan

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Technical Skills

Programming Languages: R (5000+ lines), Python (3000+ lines), C++ (1000+ lines), SQL (1000+ lines)

Data Science Skills: Advanced Statistical Methodology (Bayesian Statistics), Probability Theory, Linear Models (GLMs, Hierarchical Regression, Elastic net), Machine Learning (scikit-learn, xgboost), Unsupervised Learning (K-Means, Association Rules, NMF, PCA), Computer Vision, Social Network Analysis (igraph, amen), Bash, Git

Work Experience

Statistics Consultant

2020- Present (1 year 10 months) | The Odum Institute for Research in Social Science | Chapel Hill, NC

- Trained >100 customers on manipulating and rationalizing their structured and unstructured datasets with a 95% customer satisfaction score.
- Solved problems for 21 departments by applying casual interference using Python and R.
- Designed an analysis plan for a research project using conjoint experiment to understand voting decision given treatments of different LGBTQ+ candidates running in an election.

Teaching Assistant

2018 - Present (3 years 3 months) | University of North Carolina at Chapel Hill | Chapel Hill, NC

- Conducted lab sessions for graduate students without a technical background on probability theory, statistical methodology and implementing linear models (GLMs, Hierarchical Regression, Bayesian Statistics, Elastic net), generating visualization (ggplot, plotly) and implementing software optimization (Rcpp/ C++).
- Designed 26 labs and held over 100 hours of office hours for two graduate-level data science seminars of around 20 PhD students.

Research Consultant

2016 - 2021 (5 years) | Asia Investment Consulting GmbH| Hong Kong (Remote)

- Completed 19 research projects to advise German Businesses (e.g. Siemens) of potential infrastructure investment opportunities emerging from China's Belt & Road Initiative with potential contract value up to USD 3 million.
- Extracted insights from Baidu search results with text mining (NMF, Structural Topic Models) which saved up to 20 hours of reading per project.

Research Projects

Can municipal amalgamation lead to a higher voter turnout - the case of Norway

• Conducted causal inference (difference-in-difference, instrumental variable analysis) to identify a positive effect on voter turnout from a massive municipal merger reform in Norway from 411 municipalities and 1230 respondents.
• Based on these findings, recommended OECD governments to proceed with municipal mergers after consulting the local communities.
•**Tech Stack:** R, tidyverse, MatchIt, ggplot2, Rmarkdown, LaTeX

Is Local Economic Development Necessary for Decentralization?

• Trained a semantic segmentation model using Python (TensorFlow, panadas) to develop an index measuring the degree of local economic development with satellite images since no such index exists.
• Utilized the U-Net architecture and achieved a mean Intersection-over-Union (IoU) score of 90.5% on a test set of ~430 images to generate predictions on local economic development.
• Based on the resulting index, recommended policy makers address development inequality before devolving political authority to metropolitan areas.
•**Tech Stack:** Python, TensorFlow, pandas, numpy, matplotlib, Jupyter Notebook, Google Colaboratory

Education

Sep 2018- Jun 2023 (Expected)	PhD | Political Science | University of North Carolina at Chapel Hill Minor in Methodology (Applied Statistics), GPA: 3.9
2016 – 2018	MS | Political Science | Leiden University GPA: 3.8
2012- 2016	BA | Political Science | Hong Kong Baptist University Dean's List, GPA: 3.81

Data Science Volunteering

Convener

September 2021 - Present (3 months) | Hong Kong Professional Network Data Science Group

- Organized 2 talks on specific data science tools (U-Net architecture, Text Mining) for a Hong Kong American Data Science Practitioner Group of around 30 professionals.

Teaching Assistant

April – May 2021 (1 month) | Research Bazaar 2021, University of Arizona | Tucson, AZ (Remote)

- Led Discussion and provided guidance in the "Introduction to Python" (Basic syntax) and "Intermediate Python" (pandas) modules for 60 participants.