

# HUEI-YUAN YAO

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huei-yuan-yao.github.io

## EDUCATION

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**National Chengchi University**

M.S., Statistics

Thesis: Granger Causality Test Based on Non-pivotal Statistics

**National Taiwan University**

B.S., Mathematics

*Sep 2020 – Aug 2022*

GPA: 4.27/4.30

*Sep 2016 – Jun 2020*

GPA: 3.43/4.30

## WORKING PAPERS

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1. H.Y. Yao; Y.C. Hung; W.B. Wu, Non-pivotal Granger Causality Tests, working paper.

## RESEARCH EXPERIENCE

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**Research Assistant, National Chengchi University**

Department of Statistics

Advisor: Ying-Chao Hung

*Aug 2020 – Jul 2022*

- Validated a new Granger causality test (suggested by Prof. Wei-Biao Wu, University of Chicago) by comparing it with two classic Wald-type tests and gave some technical proof in the work

**Research Assistant, Chang Gung University**

Department of Public Health and Parasitology

Advisor: Min-chi Chen

*Jan 2022 – Aug 2022*

- Assisted in building a Machine Learning pipeline from data processing to predictions making upon specific medical data based on R

## CONFERENCE TALKS

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**Data Science, Statistics & Visualisation (DSSV 2022)**

Alternative Granger Causality Tests Based on Vector Autoregressive Model

*Jun 2022*

[abstract]

## TEACHING EXPERIENCE

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**Teaching Assistant, National Chengchi University**

- Multivariate Analysis
- Mathematical Statistics
- Linear Algebra

*Feb 2022 – Jun 2022*

*Sep 2021 – Jun 2022*

*Sep 2020 – Jun 2021*

**Teaching Assistant, National Taiwan University**

- Calculus (general Mathematics) (b)

*Sep 2019 – Jun 2020*

## TECHNICAL SKILLS

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**Proficient** R, Python,  $\text{\LaTeX}$

**Intermediate** SAS, SQL, Matlab, C

## PROJECTS

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### Machine Learning Methods on KITTI Object Detection Data

- Implemented and compared machine learning methods (HOG+SVM) with deep learning model (Yolo V3 tiny) on the object detection task
- Implemented Selective Search Based Segmentation for object recognition (an unsupervised learning task)

### Multi-armed Bandits Simulation

- Investigated and simulated three strategies ( $\epsilon$ -greedy, UCB policy and Thompson sampling) for the stochastic multi-armed bandit problem

### Comparison of K-means Clustering Algorithms

- Implemented and compared two approximation algorithms (Kmeans++ and Local search algorithm) for k-means problem (a NP-hard optimization problem)

## HONORS/AWARDS

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Member of the Phi Tau Phi Scholastic Honor Society of the Republic of China

## EXTRACURRICULAR ACTIVITIES

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Baseball team for Changhua area alumni association, National Taiwan University

Volunteer for Native Villages of Changhua, National Taiwan University

Volunteer for summer vacation in Japan, Fo Guang Shan

## RELEVANT COURSES

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### National Chengchi University

- Mathematical Statistics (I), (II) (ph.D course) [lecture note (not completed yet)]
- Real Analysis (I), (II)
- Nonparametric Function Estimation
- Multivariate Analysis
- Advanced Algorithm
- Experimental Design
- Statistical Computing and Simulation
- Categorical Data Analysis
- Applied Regression Analysis
- Sampling Method

### National Taiwan University

- Advanced Statistical Inference (I), (II)
- Causal Inference
- Econometrics (I)
- Functional Analysis
- Stochastic Calculus
- Introduction to Statistics
- Introduction to Stochastic Processes
- Introduction to Probability Theory
- Introduction to Mathematical Analysis(I), (II)