

# 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

*Sep 2020 – Aug 2022*

GPA: 4.29/4.30

**National Taiwan University**

B.S., Mathematics

*Sep 2016 – Jun 2020*

GPA: 3.49/4.30

## WORKING PAPERS

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1. Wu, W.B.; Hung, Y.C.; Yao, H.Y. Nonpivotal Granger Causality Tests Based on VAR Model with Large Orders.

## RESEARCH EXPERIENCE

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**Research Assistant (part-time)**

Department of Statistics, National Chengchi University

Advisor: Ying-Chao Hung

*Aug 2020 – Jul 2022*

- Proposed and analyzed a new Granger causality test, validated its efficiency and advantages over the Wald-type tests

**Research Assistant (part-time)**

Department of Public Health and Parasitology, Chang Gung University

Advisor: Min-chi Chen

*Jan 2022 – Aug 2022*

- Assisted in building a Machine Learning pipeline from data processing to predictions making upon tumor stage 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] [slides]

## 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, L<sup>A</sup>T<sub>E</sub>X

**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
- Hope Team for Educational Learning, Changhua Pei Ying primary school

## RELEVANT COURSES (GRADUATE-LEVEL)

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### National Chengchi University

- Mathematical Statistics (I), (II) (ph.D. course) [lecture notes]
- Real Analysis (I), (II)
- Nonparametric Function Estimation
- Multivariate Analysis
- Advanced Algorithm
- Experimental Design
- Statistical Computing and Simulation
- Categorical Data Analysis
- Applied Regression Analysis

### National Taiwan University

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