# Chun-Yuan (Tony) Huang

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https://tonycytw.github.io/

## RESEARCH INTERESTS
**Theory and Methodology**: high-dimensional statistics, dynamical system, Bayesian statistics
**Applications**: human genetics, public health, cognitive psychology

## EDUCATION
**The University of Texas at Dallas,** USA                                                          May 2023
*Master of Science, Statistics (Data Science track)*
**National Cheng Kung University,** Tainan, Taiwan                                            May 2018
*Bachelor of Science, Statistics,* Minor: *Political Science*

## PUBLICATION
- Ahmad Z., Xing C., Khera A., **Huang C.Y.**, Brandt E.J., MacDougall D.E., Ahmed C.D., McGowan M.P., Wilemon K.A., Myers K.D. (2022+). *Using Healthcare Claims Data and Machine Learning to Identify Health Disparities for Individuals with Diagnosed and Undiagnosed Familial Hypercholesterolemia*. Under review in Journal of the American Heart Association.
- **Huang C.Y.**, Yang C.T., and Fific M. (2018). *System Factorial Technology Provides New Insights on Hybrid Search*. In poster presented at 59th Psychonomic Society Annual Meeting.
- **On-Going Project** *Network and Changepoint Estimation on Single-Cell RNA Sequencing Pseudotime Trajectories.*

## RESEARCH EXPERIENCE
**McDermott Bioinformatics Lab,** The University of Texas Southwestern Medical Center (UTSW), USA  Dec. 2021 – Present
*Research Intern at Laboratory of Dr. Chao Xing*
- Performed projects in genomics and public health in UTSW as a collaborator and research on network inference for single-cell RNA sequencing (scRNA-seq) as the lead researcher and first author.
- Contributed to the project by performing statistical consulting, data wrangling in R and modeling using logistic regression to identify health disparities with Dr. Zahid Ahmad (UTSW) and Family Health Foundation.
- Inspired by real-world problems in estimating complex and dynamical structure in my past research experience and defined my research problem on estimating dynamical networks for scRNA-seq trajectories.
- Developed a time-varying graphical LASSO framework to perform network estimation based on inverse covariance; implemented parallel computing with C++ and R; Assessed function in a Linux bash environment.
- Provided statistics and high-performance computing (HPC) information support to the researchers in UTSW.

**Visual Cognition and Modeling Lab,** National Cheng Kung University, Taiwan                    Sep. 2016 – June 2018
*Research student at Laboratory of Dr. Cheng-Ta Yang*
- Performed research on human visual search in cognitive psychology as the lead researcher and first author.
- Constructed experimental program and executed the hybrid search experiment using eye-tracking software (Eyelink); recruited 55 participants and collected large eye movement datasets; cleaned response data using R.
- Implemented system factorial technology (SFT) and ANOVA to hybrid search reaction time data using R and MATLAB, analyzed the results, and wrote the hybrid search paper.
- Supported various lab duties including participant recruitment and scheduling and experiment assistance.

## INDUSTRY EXPERIENCE
**Crédit Agricole Corporate and Investment Bank,** Taiwan                                      Dec. 2018 – Dec. 2020
*Assistant Relationship Manager (Trainee), Financial Institutions Coverage & Debt Capital Market*
- Produced statistical exhibits and slides for Taiwanese financial industry and international bond market trends research; prepared pre-meeting briefing materials for C-level client meetings.
- Developed and reviewed business strategies of Taiwanese financial institutions; assisted senior relationship manager in managing customer life cycle; facilitated various collateral agreements negotiations.

**GfK Retail and Technology Ltd.,** Taiwan                                                      Jan. 2018 – June 2018
*Market Research Intern*
- Responsible for reporting automation projects using R and VBA, decreasing data processing time by up to 25%.
- Designed store geographic distribution dashboard using Tableau to identify retail opportunities.

**AWARD**
- 2018 59$^{th}$ Psychonomic Society Graduate Conference Award (10% acceptance rate) $ 1,000
- 2017 National Science Council of Taiwan Undergraduate Student Thesis Award $ 1,000

**VOLUNTARY EXPERIENCE**
- Data for Social Goods, DSP Inc., Taiwan – *Data Analyst*                    July 2017 – Oct. 2017
- The Road to Rights International Organization, Sri Lanka – *International Volunteer*         July 2015 – Sep. 2015

**ADDITIONAL INFORMATION**
*Technical*: R, C++, Python, Bash, SAS, MATLAB, SQL, Data Visualization (Tableau, R shiny)
*Languages*: Mandarin, English

**REFERENCE**
**Dr. Chao Xing**
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**Dr. Adwait Amod Sathe**
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**Dr. Cheng-Ta Yang**
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