

Tzu-Yao Lin

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A committed, communicative, and team-oriented MA student in Psychology. I have a strong interest in the mathematical modeling of decision-making processes and good at statistics, data analysis, and programming. I am always eager for new knowledge and willing to share what I have learned.

Current Research

INCORPORATING THE THRESHOLD THEORY INTO THE CULTURAL CONSENSUS THEORY FOR ORDINAL CATEGORICAL DATA: A SIMULATION STUDY

Advisor: Prof. Yung-Fong Hsu

Cultural consensus theory (CCT), developed by Batchelder and colleagues in the mid-1980s, is a cognitively driven methodology to assess informants' consensus in which the culturally correct answers are unknown to researchers in prior. The primary goal of CCT is to uncover the cultural knowledge, preference, or beliefs shared by members of a group. One of the CCT model, called the General Condorcet Model (GCM), deals with binary (e.g., true/false) response data which were collected from a group of informants who share the same cultural knowledge provide answers to a set of true/false questions. In my study, I try to extend the GCM with the threshold theory to account for the ordinal categorical data (including the Likert-type questionnaires) in which informants can express the different confidence levels about the items. By using the hierarchical Bayesian model, the new model is specified the item's cultural consensus truth as well as other item's response effects (e.g., item's difficulty, informant's knowledge and response bias). In this research, I used the Bayesian inference with the Markov chain Monte Carlo sampling method to evaluate the recovery of the parameters by analyzing simulated data sets.

Education

National Taiwan University

Master in Psychology

Taiwan (R.O.C.)

September 2019–Present

National Taiwan University

Bachelor in Psychology (major) and in Forestry and Resources Conservation (minor)

Taiwan (R.O.C.)

September 2014–June 2019

Awards

The 3rd Outstanding Poster Award

8th Annual Meeting Poster Competition

November 2020

Dean's Award

College of Science, National Taiwan University

2019

Professor Fa-Yu Cheng Memorial Scholarship

Department of Psychology, National Taiwan University

2019

Academic Excelent Award

Department of Psychology, National Taiwan University

S2 2016

Academic Excelent Award

Department of Forest, National Taiwan University

S2 2014

Graduate Level Statistics Courses

2020 S2	MATH7610: Multivariate Statistical Analysis	A+
2020 S1	MATH7606: Regression Analysis	A
2019 S2	MATH7604: Advanced Statistical Inference II	A-
2019 S1	MATH7603: Advanced Statistical Inference I	B-
2019 S1	PSY7001: Experimental Design	A+
2018 S2	PSY5033: Applied Linear Regression	A+
2018 S1	EPM5074: Applied Bayesian Statistical Analysis	A

Research Experience

The cultural consensus theory extends with the threshold theory: A study of ordinal categorical data analysis

Prof. Yung-Fong Hsu

Research Assistant

August 2019–July 2020

- We incorporated the threshold theory into cultural consensus theory to deal with the ordinal categorical data. I axiomatized our new model and used Markov chain Monte Carlo sampling for Bayesian inference.

From mind reading to mind sharing: A study on neural correlates of cognitive and affective “Theory of Mind” and their applications to salesforce enhancement

Prof. Heng-Chiang Huang and Ph.D.

Jonathan Tong

Research Assistant

January 2018–Present

- We tried to measure the subject’s ability of cognitive and affective theory of mind. According to our experiment paradigm, we also probed into the topographic representation of numerosity on the brain.

Coalition without trust: The intra-brain connectivity and inter-brain synchronization of herd behaviors in an economic bubble game

Prof. Yu-Ping Chen and Ph.D.

Jonathan Tong

Research Assistant

January 2018–Present

- I attended data collection and analyzed behavior and fMRI data. The breakthrough in this project was that we connected two MRIs and collected both subject’s BOLD signals simultaneously.

Research of positive and negative memorable tourism experience

Prof. Chia-Pin Yu

Learning Assistant

September 2016–January 2017

- Assisted in data collection and qualitative interviews about the memorable tourism experience.

Characteristics of the evapotranspiration of a Japanese cedar forest in Xitou in Tawian

Researcher Sophie Laplace

Research Assistant

February 2015–January 2016

- Assisted in collecting the evaporation data of tree sap flow in Xitou experimental forest.

Presentations

8th Annual Academic Conference on Psychology in NTU

Incorporating threshold theory into the cultural consensus theory for ordinal categorical data: A simulation study

2020

- Received the 3rd Outstanding Poster Award
- Poster: https://xup6y3ul6.github.io/GCLKmodel_poster/poster.pdf

Teaching Assistant

2020 S1 PSY7001: **Experimental Design**

2019 S1 PSY1004: **Statistics in Psychology and Education II**

4.33/5.00

2019 S1 PSY1003: **Statistics in Psychology and Education I**

4.40/5.00

Skills

Analytical

Statistical modelling, Computational modelling, Bayesian statistics, Neuroimage analysis

Programming

R (tidyverse, rmarkdown, shiny), JAGS, Stan, Python (pytorch), Matlab (SPM, Brainstorm)

Tools

Git, GitHub

English

Reaching the High-Intermediate Level in the General English Proficiency Test

Extracurricular Activities

9th Taiwan National Fire Dance Competition

Leader and Choreography

2017

- Group champion

National Taiwan University Fire Dance Club

Vice president

August 2016-July 2017

11th Presentation of National Taiwan University Fire Dance Club

Coordinator

December 2016

10th Presentation of National Taiwan University Fire Dance Club

Vice Coordinator

May 2016

Forest Summer Camp

Lecturer and Team Leader

2015 & 2016

Forest Orientation Camp

Vice Coordinator

May 2015-September 2015

National Taiwan University Student Association

The member of Election & Recalling Execution Commission

September 2014-July 2015