

Heng-Chien (Leo) Liou

UNDERGRADUATE RESEARCHER · INTERDISCIPLINARY LEARNER

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Research Interest

Network Science, Computational Social Science, and their intersections.

Education

National Taiwan University (NTU)

Taipei, Taiwan

B.S.Eng. in **Electrical Engineering** and B.S. in **Psychology**

Sep. 2016 - PRESENT

- **GPA: 4.25/4.30** 1st year: 4.18, 4.29 / 2nd year: 4.27, 4.27 / 3rd year: 4.27, 4.26 / 4th year: 4.26
- Selected Courses (all with letter grade **A+**)
 - **Information, Systems & Decision Science**
Probability & Statistics, Information Theory[†], Control Systems, Game Theory[†], Data Structure & Programming, Design & Analysis of Algorithms[†]
 - **Social Science**
Economics I-II, Introductory Sociology, Sociological Theory (1), Social Psychology, Psychology of Personality
 - **Problem Domain**
Neural & Behavioral Modeling[†]

([†] denotes graduate-level courses)

MITx (Massachusetts Institute of Technology through edX)

Online

MicroMasters Program in **Statistics and Data Science**

Feb. 2019 - Present

- Expected to complete four graduate level courses, at a similar pace and level of rigor as on-campus courses at MIT.
- Credentials: Probability🔗, Data Analysis in Social Science🔗, Fundamentals of Statistics🔗, Machine Learning🔗

University of British Columbia

Vancouver, BC, Canada

Vancouver Summer Program

July. 2017 - Aug. 2017

- Solid training on design thinking with group project and presentation experience.

Research Experience

TONIC Research Group @ National Taiwan University (NTU)

Taipei, Taiwan

Undergrad Research on Network Science, advised by Prof. Hung-Yun Hsieh

Sep. 2018 - PRESENT

- Formation of Friendship Networks among Agents with Personality Traits
 - Admitted proposal to MoST College Student Research
 - Developed computational network models to incorporate psychological concept into network science research

Institute of Sociology, Academia Sinica

Taipei, Taiwan

Undergrad Research on Computational Sociology, advised by Prof. Hsuan-Wei Lee

Jan. 2020 - PRESENT

- Social Consensus and Cultural Variation: Modeling and Theorizing for Social Dynamics
 - Research proposal submitted to MoST College Student Research

Collective Algorithms Lab @ NTU

Taipei, Taiwan

Undergrad Research on Algorithmic Game Theory, advised by Prof. Ho-Lin Chen

Sep. 2019 - PRESENT

Vision and Learning Lab @ NTU

Taipei, Taiwan

Undergrad Research on Computer Vision, advised by Prof. Yu-Chiang Frank Wang

Nov. 2018 - Aug. 2019

- Deep Learning for Social Relationship Recognition
 - Surveyed, implement and reproduced literature to develop methods

Professional Development and Certification

Online learning

Online

Broad training from Coursera, edX and other online learning platforms

March. 2019 - RRESENT

- **Information, Systems & Decision Science**

Game Theory [↗](#), Quantum Machine Learning [↗](#)

- **Social Science**

Moral Foundations of Politics [↗](#), Intro to Social Research Methods [↗](#), Classical Sociological Theory [↗](#), Anthropology of Current World Issues [↗](#)

- **Social Networks**

Network Dynamics of Social Behavior [↗](#)

Selected Course Projects

A Brief Review of Brain Machine Interface with Focus on RFID-inspired System

Electromagnetism (II), *term paper*

- Surveyed the literature of RFID technology, BMI design.

Hook-up: motives and individual difference

Social Psychology, *group oral presentation*

- Surveyed the social psychology literature about hook-up, casual sex and friends-with-benefit.

Emotional Resonance on Structured Network: A Simulation Approach

Special Project (on network science), *term paper*

- Conducted simulation of emotion contagions on social network model.
- Examined the epidemic prevalence within community structure.

Survey on Social Contagion Theory with Emphasis on Emotion Contagions

Special Project (on network science), *oral presentation*

- Surveyed the literature about social contagions theory, emotion contagions.

Extracurricular Activity

Global Initiatives Symposium Organizing Committee

Taipei, Taiwan

Officer of Academics and Curation

Oct. 2016 - July. 2017

- Organized and host Pre-Symposium Speech: Revolution of Sustainable Life.
- Was responsible for one of the academic topics- Low Carbon Economy in annual symposium.

Viking Bar

Taipei, Taiwan

Writer for Technology and Business Section

Sep. 2016 - Jan. 2018

- Analyzed several topics in modern technology development.
- Also wrote articles about personal growth, interdisciplinary learning, gender equality.

NTU Musical Club

Taipei, Taiwan

Member & Main Actor

Sep. 2016 - Jun. 2017

- Learned how to act and sing like a musical actor.
- Participated in annual musical performance with one of the main roles.

Honors & Awards

RESEARCH GRANTS

2019 COLLEGE STUDENT RESEARCH, Ministry of Science and Technology

AWARDS

2017-9 PRESIDENTIAL AWARDS (DEAN'S LIST) **4 SEMESTERS**, National Taiwan University
2017 INSTRUCTOR RECOMMENDATION, Critical Writing on Chinese Classics

SCHOLARSHIP

2019 MR. CHIEN SHIH-LIANG MEMORIAL SCHOLARSHIP, National Taiwan University
2018 DELTA ELECTRONICS SCHOLARSHIP, Delta Electronics
2018 SCHOLARSHIP, National Taiwan University Hong Kong Alumni Association
2018 IRVING T. HO MEMORIAL SCHOLARSHIP, Irving T. Ho Memorial Foundation
2017 FOLK COMMITTEE SCHOLARSHIP, Zhongshan District Office of Taipei City

Skills

Programming Python, C++

Language Mandarin (native), English (fluent)

Research Method Agent-based Modeling, Social Network Analysis, Game Theoretic Analysis

Learning Interest

Math Probability Theory, Mathematical Statistics

Engineering Optimization, System Dynamics

Sociology Analytical Sociology, Gender and Queer Theory

Psychology Personality, Social Relationship, Friendship