Heng-Chien 'Leo' Liou

ALGORITHMIC FAIRNESS · NETWORK AND DATA SCIENCE

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"Philosophers have hitherto only interpreted the world in various ways; the point is to change it."-Karl Marx

Research Statement

I study the theoretical foundation of network and data science; furthermore, I investigate and mitigate their societal impacts.

Keywords: *Algorithmic Fairness*, *Network and Data Science*

Education

National Taiwan University — *Taipei, TW*

Master of Science, Communication Engineering — *ongoing*

- Thesis Advisor: Prof. I-Hsiang Wang
- Courses
  - **Information and Decision Systems**
    Intro to Mathematical Analysis (I), Intro to Mathematical Analysis (II)
  - **Social and Behavioral Sciences**
    Queer Theory, Science and Technology Studies
  - **Professional and Intercultural Communications**
    Fundamentals of English Writing, German I (1)

National Taiwan University — *Taipei, TWN*

Bachelor of Science in Engineering, Electrical Engineering ☑ — *2021*

- Cumulative **GPA: 4.26/4.30** and **Ranking: 1/259**
- Academic Advisor: Shyh-Kang Jeng
  Research Advisor: Hung-Yun Hsieh (Networks), Hsuan-Wei Lee (Computational Sociology), Ho-Lin Chen (Algorithms)
- Selected Courses (all with letter grade A+; † denotes graduate-level courses)
  - **Information and Decision Systems**
    Eng Math-Linear Algebra, Eng Math-Differential Equation, Probability & Statistics, Signals & Systems, Data Structure & Programming, Design & Analysis of Algorithms†, Control Systems, Information Theory†, Convex Optimization†
  - **Social and Behavioral Sciences**
    Economics I-II, Game Theory†, Introductory Sociology, Sociological Theory (1)-(2), General Psychology, Social Psychology, Psychology of Personality, Abnormal Psychology, Neural and Behavioral Modeling†
- Honors: Phi Tau Phi Honor Fellow, Mr. Chien Shih-Liang Memorial Scholarship, Irving T. Ho Memorial Scholarship

University of British Columbia — *Vancouver, BC, CAN*

Summer Program, Design Thinking — *2017*

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

Taipei Municipal Chien Kuo High School — *Taipei, TWN*

High School Diploma, Math and Natural Science — *2016*

- Recipient of **Taipei City Mayor Award** (for the students with highest GPA in class)
- One of the 138 who scored full marks (75/75), out of 133905 examinees, in General Scholastic Ability Test 2016. [CNA News] [Web Archive]

Online Education

MITx — *Online*

MicroMasters Program in **Statistics and Data Science** — *Ongoing*

- Completed four graduate level courses, at a similar pace and level of rigor as on-campus courses at Massachusetts Institute of Technology; waiting to complete the capstone exam.
- Credentials: Probability ☑, Data Analysis in Social Science ☑, Fundamentals of Statistics ☑, Machine Learning ☑

Coursera & edX
Online

Online Courses
Indefinite

- **Information and Decision Systems**
  Probability ⬈, Fundamentals of Statistics ⬈, Machine Learning ⬈, Quantum Machine Learning ⬈
- **Social and Behavioral Science**
  Data Analysis in Social Science ⬈, Game Theory ⬈, Moral Foundations of Politics ⬈, Introduction to Social Research Methods ⬈, Classical Sociological Theory ⬈, Network Dynamics of Social Behavior ⬈, Anthropology of Current World Issues ⬈

Honors & Awards

RESEARCH GRANTS

2020	MOST RESEARCH GRANT FOR UNDERGRADUATE STUDENTS, Ministry of Science and Technology	*TWN*
2019	MOST RESEARCH GRANT FOR UNDERGRADUATE STUDENTS, Ministry of Science and Technology	*TWN*

FELLOWSHIP

2021	PHI TAU PHI HONOR FELLOW ⬈, The Phi Tau Phi Scholastic Honor Society	*TWN*

SCHOLARSHIP

2020	DELTA ELECTRONICS SCHOLARSHIP, Delta Electronics	*TWN*
2019	MR. CHIEN SHIH-LIANG MEMORIAL SCHOLARSHIP, National Taiwan University	*TWN*
2018	DELTA ELECTRONICS SCHOLARSHIP, Delta Electronics	*TWN*
2018	NTUHK SCHOLARSHIP, Hong Kong Alumni Association of National Taiwan University	*TWN*
2018	IRVING T. HO MEMORIAL SCHOLARSHIP ⬈, Irving T. Ho Memorial Foundation	*TWN*

AWARDS

2021	RESEARCH CREATIVITY AWARD , Ministry of Science and Technology	*TWN*
2020	RESEARCH CREATIVITY AWARD ⬈, Ministry of Science and Technology	*TWN*
2017-9	PRESIDENTIAL AWARD (TOP 5% OF CLASS) FOR 4 SEMESTERS ⬈, National Taiwan University	*TWN*
2016	MAYOR AWARD, Chien Kuo High School and Taipei City Government	*TWN*

OTHERS

2020	DIPLOMA CONFERMENT REPRESENTATIVE, Department of Electrical Engineering, NTU	*TWN*

Skills

Software Systems	LaTeX
Programming Language	Python, C++, MATLAB, R
Python Library	NetworkX, graph-tool, NumPy
Natural Language	Taiwanese Mandarin (native), English (fluent), Taiwanese Hokkien (listening)