Chia-Hao Chang

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Education

Columbia University — **New York City, NY** — **Sep 2020-present**
- **Ph.D. in Operations Research**

The University of Texas at Austin (UT Austin) — **Austin, TX** — **Aug 2018 – May 2020**
- **M.S. in Decision, Info. and Commun. Engr. (DICE), Electrical and Computer Engineering (ECE)** — **GPA: 4.0/4.0**
- **Advisor**: Prof. John Hasenbein and Prof. Thomas Wiseman
- **Thesis:** Effects of Patient Heterogeneity in a First-Come-First-Serve Kidney Transplant Model
- **Graduate Coursework:** Probability and Stochastic Processes, Large Scale Optimization, Linear Programming, Analysis and Design of Communication Networks, Game Theory, Queueing Theory, Theory of Probability (I), Theory of Probability (II), Statistical Machine Learning

National Taiwan University (NTU) — **Taipei, Taiwan** — **Sept 2013 – Jan 2018**
- **B.S. in Electrical Engineering (EE) with minor in Physics (Phys)** — **GPA:4.15/4.30**
- **NTU Presidential Award for 3 semesters**: Awarded to students ranked within the top 5% in each semester.
- **Relevant Courses**: Mathematical Analysis (I), Probability and Statistics, Calculus (I) and (II), Discrete Mathematics, Linear Algebra, Differential Equation, Signals and Systems, Principle of Communications

Research Interest

Stochastic Processes
- Stochastic Modeling and Stochastic Systems
- Stochastic Optimal Control

Mathematical Economics
- **Dynamic Game Theory**: Strategic Experimentation, Learning and Information Aggregation in Games
- **Decision Theory**: Decision Theory, Choice Theory, Subjective Probability

Research Experience

Game Theory — **with Prof. Thomas Wiseman** — **June 2019 – Dec 2019**
- Dynamic game model for staged financing.
- Investigate the effects of signal structure on the associated perfect Bayesian equilibria.

Strategic Queues — **with Prof. John Hasenbein** — **Jan 2019 – Dec 2019**
- Game-theoretic queueing models for kideny transplantation.
- Analyze the parameter sensitivity in a novel way- approximate the originally complex MDP and perform analysis on each approximated MDP; show the approximated MDPs converge to the original MDP.
- Presented at *INFORMS Annual Conference 2019*.

Wireless Communication — **with Prof. Jean-Fu Kiang** — **Feb 2017 – Jan 2018**
- Developed a novel transmission scheme of a cognitive wireless-powered communication network.
- Proposed a subproblem that efficiently solved the originally non-convex optimization problem and proved the relation between two problems.

Electromagnetics and Fluid Mechanics — **with Prof. Jean-Fu Kiang** — **Sept 2015 – Jan 2017**
- Implemented MATLAB programs to solve Navier-Stokes Equations and simulated the hypersonic regime of aerodynamics.

Publication

- Chia-Hao Chang and John Hasenbein: Effects of patients' heterogeneity on patients' choice in a first-come-first-serve kidney transplant system, *in preparation*.

Talks

INFORMS Annual Conference 2019 — **Seattle, WA** — **Oct 2019**

- Session: WB11 - Queueing Approximations and Strategic Queues.

Honors

High School Physics Contest Winner — **Kaohsiung, Taiwan** — **Oct 2012**

- First prize and representative of Kaohsiung City.

Selection Test for International Physics Olympiad — **Taiwan** — **Nov 2012**

- Second round

Teaching Experience

Teaching Assistant — **NTU** — **Sept 2016 – Jan 2017**

- Volunteered-Service Learning Class

Employment

Mandatory Military Service — **Tainan, Taiwan** — **Feb 2018 – June 2018**

- Private, Taiwan Army.

Private Tutoring — **Taipei, Taiwan** — **Sept 2014 – Jan 2018**

- High school physics and mathematics.

Leadership and Extracurricular Activities

Attendee — **Texas Wireless Summit** — **Nov 2018**

- Student attendee of Texas Wireless Summit held at UT Austin (Topic of the summit: AI and the Mobile Device).

Club Leader — **NTU Kind-kids Club** — **Feb 2016 – June 2016**

- Leader of a seventy-four person voluntary club.

Club Member — **NTU Kind-Kidds Club** — **Sept 2013 – June 2017**

- Weekly volunteered curricular service at Bethany Orphanage, Taipei, Taiwan.

Camp Activity Organizer — **NTUEE Summer Camp** — **July 2014**

- Held a summer camp dedicated for high school students to get to know electrical engineering.

Technical Skills

Programming Languages

- MATLAB, Python, LaTeX

Spoken Languages

- Chinese(native), Taiwanese(native), English(fluent)