

# Hung-Chun Lin

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## Education

### National Taiwan University

Taipei, Taiwan

B.S. IN ELECTRICAL ENGINEERING, COLLEGE OF ELECTRICAL ENGINEERING & COMPUTER SCIENCE

Sep. 2017 - Jun. 2021

- **GPA:** Overall: **4.01/4.3** (193 credits) || Last 60 credits: **4.24/4.3** || Rank: **34/189**
- **Selected B.S. level courses:** Introduction to Artificial Intelligence and Machine Learning (**A+**), Engineering Mathematics-Linear Algebra (**A+**), Web Programming (**A+**), Principle of Communications (**A+**), Introduction to Wireless and Mobile Networking (**A+**), Rf Microwave Wireless Systems (**A+**), Electrical Engineering Lab. (electromagnetic Waves) (**A+**), Electrical Engineering Lab (topics on Communication System) (**A+**), Algorithm (**A**), Data Structure and Programming (**A**), Introduction to Computer Networks (**A**)

### National Taiwan University

Taipei, Taiwan

M.S. IN GRADUATE INSTITUTE OF COMMUNICATION ENGINEERING

Aug. 2021 - present

- Wireless mobile network Laboratory. Advised by Prof. Hung-Yu Wei.
- **Selected M.S. level courses:** Convex Optimization (**A+**), Machine Learning (**A+**), Wireless Communication (**A+**), Queueing Theory (**A+**), Network Virtualization and Security (**A+**), Game Theory with Applications to Marketing and Finance (I) (**A+**), Time-frequency Analysis and Wavelet Transform (**A+**), Embedded System Design (**A+**), Pervasive Computing in Vehicular Overlay Network (**A+**)

### University of Wisconsin-Madison

Madison, WI, USA

GRADUATE EXCHANGE STUDENT

Jan. 2023 - May. 2023

- **Selected M.S. level courses:** Matrix Methods in Machine Learning (**A, 4.0/4.0**), Stochastic Modeling Techniques (**A, 4.0/4.0**)

## Honors & Awards

2020 **Dean's List Award (Awarded to top 5% of students in the department)**, NTUEE

Taipei, Taiwan

## Publications

Age of Information for Power-Saving Devices with DRX Mechanism [Link](#)

**Hung-Chun Lin**, Kuang-Hsun Lin, Hung-Yu Wei

IEEE International Conference on Communications (ICC) 2023, June 2023

Adaptive Age of Information Optimization in Rateless Coding-Based Multicast-Enabled Sensor Networks [Link](#)

**Hung-Chun Lin**, Kuang-Hsun Lin, Hung-Yu Wei

IEEE Journal of Selected Areas in Sensors, under review

## Research Experience & Related Projects

### Age of Information (AoI) in Multicast-Broadcast Services (MBS) [Link](#)

Taipei, Taiwan

ADVISOR: PROF. HUNG-YU WEI [Link](#)

Sep. 2021 - Sep. 2023

- Investigating 3GPP's standardization for multicast, emphasizing Rateless code's role in adjusting to varying channel conditions and reducing latency, and its impact on maintaining data freshness during multicast.
- Pioneering an architecture employing the Markov Decision Process (MDP) for deriving transmission strategies optimized for AoI, ensuring mathematical rigor and balance with practical solutions. Research is under review at the IEEE Journal of Selected Areas in Sensors.

### AoI in Discontinuous Reception (DRX) [Link](#)

Taipei, Taiwan

ADVISOR: PROF. HUNG-YU WEI [Link](#)

Sep. 2022 - Present

- Exploring the interplay between DRX, a power-saving standard, and AoI, focusing on how DRX's inactive phases can potentially compromise AoI and the balance between energy conservation and data freshness.
- Proposing DRX parameter adjustments using simulations to minimize AoI metrics under energy constraints, with preliminary findings presented at the 2023 IEEE International Conference on Communication (ICC). The journal extension version will be submitted soon.

### Packet Transmission Optimization in Data Centers

Madison, WI, USA

ADVISOR: PROF. QIAOMIN XIE [Link](#)

Feb. 2023 - May. 2023

- Researching tailored transmission strategies for different QoS needs in data centers during an exchange at Wisconsin-Madison.
- Introducing a strategy using Lyapunov optimization and highlighting potential benefits for resource allocation and revenue enhancement.

### Adaptive reliability-oriented retransmission scheme in multicast communication system [Link](#)

Taipei, Taiwan

COURSE PROJECT, ADVISOR: PROF. HUNG-YU WEI [Link](#)

Sep. 2020 - Jan. 2021

- Deriving limits for reliable HARQ multicast schemes under URLLC scenario.
- Writing a simulation code for multicasting in a fading channel using HARQ.

## SDR Security - Implementation of GPS Spoofing and Rogue eNB/gNB [Link](#)

Taipei, Taiwan

PROGRAM PROJECT, INFORMATION SECURITY INCUBATION PROGRAM (ISIP) [Link](#)

Aug. 2019 - Aug. 2020

- Participating in the Capture the Flag (CTF) competition and getting permission to attend AIS3.
- Implementing a rogue base station that can mislead the mobile phone to deviate from our base station.

## Teaching Assistant Experience

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### Department of Electrical Engineering, National Taiwan University

Taipei, Taiwan

LEADER OF **COMPUTER PROGRAMMING CONSULTING SERVICE**

Sep. 2021 - Jun. 2022

**Instructor: Chien-Mo (James) Li** [Link](#)

- Leading and coordinating more than 20 students in NTUEE to provide computer program consultation services to NTU students.
- Under my arrangement, the number of students who came to consult reached nearly 100, which has doubled compared to last year.

### Department of Electrical Engineering, National Taiwan University

Taipei, Taiwan

**LINEAR ALGEBRA** COURSE TA

Sep. 2021 - Jan. 2022

**Instructor: Hung-yi Lee** [Link](#)

- Designing Python practice homework for students.
- Providing office hours regularly for students.

### Leadership Program, National Taiwan University

Taipei, Taiwan

**THE OPERATIONAL THINKING OF LEADING ENTERPRISE** COURSE TA

Feb. 2022 - Jun. 2022

**Instructor: Jason Hsu** [Link](#)

- Contacting and confirming with invited speakers about details of the presentation.
- Organizing students' questions and feedback and reporting to invited speakers.

## Skills

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**Programming** Python, C++, MATLAB, JavaScript,  $\LaTeX$ , Linux, Git, Markdown, Machine learning

**Languages** Mandarin (native), English (TOEFL 101/120, Oct 2023), Japanese (JLPT N1, Dec 2021)

## Extracurricular Activity

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### National Taiwan University, Department of Forestry

Taipei, Taiwan

INSTRUCTOR FOR "INTRODUCTION TO FOREST BIODIVERSITY" OUTDOOR COURSE

Mar. 2018 - Apr. 2022

- Serving as the instructor for the stargazing sessions of the course, guiding 40 students in each semester.
- Teaching students about stargazing and astronomical knowledge for seven semesters.

### National Taiwan University Photography Club

Taipei, Taiwan

DIGITAL DARKROOM DIVISION HEAD

Feb. 2019 - Jun. 2019

- Leading the Digital Darkroom Division, teaching club members about digital camera theory and knowledge.
- My astrophotography works were selected four times for inclusion in the Central Weather Administration's astronomical calendars.
- If you are interested in my astrophotography works, please refer to @hclin\_photography on Instagram.