Tong-Nong Lin

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EDUCATION

University of Texas, Austin **Texas, U.S.**

Doctor of Philosophy in Electrical and Computer Engineering (SES track) Sep. 2024 – now

- Research Focus: **Parallel Computing, Program Analysis, Compiler, Distributed System, Software Testing**

National Taiwan University (NTU) **Taipei, Taiwan**

Master of Science in Electrical Engineering and Computer Science Sep. 2017 - Jun. 2019

Bachelor of Science in Electrical Engineering (EE) and Mathematics (Double Major) Sep. 2012 - Jun. 2017

WORK EXPERIENCE

Mediatek (MTK) **Hsinchu, Taiwan**

Software Engineer Sep. 2019 - Mar. 2023

- Independently responsible for designing and **developing AES256-GCM mode cryptographic algorithm** into the communication chip's software scheme
- **Design authentication protocols** and encryption/decryption procedures in bootup mode without using RAM
- Enhance authentication protocols between the phone and the server in SIM-lock feature
- Implement certificate framework to support ASN.1 DER format

Academia Sinica – Information Science **Taipei, Taiwan**

Research Assistant Mar. 2023 - Mar. 2024

Advisor: Professor Meng-Tsung Tsai

Research on **Streaming Algorithm on graph** problems

- Designed a deterministic algorithm to **find an independent set that meets Turan's Bound**
- Leverage skills of **probabilistic method** and **de-randomization** to design the deterministic algorithm

NTU – Collective Algorithm Lab **Taipei, Taiwan**

Research Assistant Sep. 2017 - Jun. 2019

Advisor: Professor Ho-Lin Chen

Research on Game Theory

- Thesis : Generalized form of risk aversion under uncertainty

  Propose generalized formulas to represent player's risk aversion under uncertainty.

  Proved upper and lower bounds on the price of anarchy when players' risk aversion satisfies certain constraints.

  Showed these bounds are tight or nearly tight for many previously studied risk aversions.

PUBLICATION

1. Tong-Nong Lin, Yu-Cheng Lin, Cheng-Chen Tsai, Meng-Tsung Tsai, and Shih-Yu Tsai, "**Efficient Algorithms for Decomposing Integers as Sums of Few Tetrahedral Numbers**," *the 35th International Workshop on Combinatorial Algorithms (**IWOCA**)*, pages 259-272, 2024.

PROJECT EXPERIENCE

Engineering Programming Analysis

- **Modify GCC compiler** to support new expression Sep. 2024
- Use **Antlr4** to do **lexing, parsing**, and **semantic analysis on Trino SQL** Sep. 2024
- Utilize **Java Pathfinder (JPF)** to implement **memoization** technique and **code coverage** Oct. 2024
- Modified **OpenJDK** to to support a **new language construct**:[[Expression, Expression, Expression, ...]] Dec. 2024

AWARDS & HONORS

- 3 times vAward, Mediatek Dec 2019, Dec 2020, Dec 2022
- Dean's List Award (Top 5% of class) Spring 2013

RELATED SKILLS

- Programming Language: C/C++, java, Python