# Jui-Tse Hung

Computer Science Senior

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## Education

**Georgia Institute of Technology**　　　　　　　　　　　　　　　　　　　*Atlanta, GA, U.S.*
Computer Science B.S./M.S. - GPA 4.00/4.00 (Faculty Honors)　　　　　　　　*Aug 2020 - Dec 2024*
**Selected Coursework:** Design & Analysis of Algorithms, Systems and Networks, Computer Networking, Computer Simulation, Machine Learning

**De Anza College**　　　　　　　　　　　　　　　　　　　　　　　　*Cupertino, CA, U.S.*
Computer Science (Sophomore) - GPA 4.00/4.00 (Dean's List)　　　　　　　　*Jan 2019 - Jun 2020*
**Courses:** Intermediate C++ Programming, Advanced Java Programming, Introduction to SQL, Linear Algebra, Differential Equations

**National Taiwan University**　　　　　　　　　　　　　　　　　　　　*Taipei, Taiwan*
Chemical Engineering (Freshman dropped out) - GPA 4.26/4.30 (Rank 1/110)　　*Sep 2017 - Jun 2018*
**Courses:** Calculus, General Physics & Lab, General Chemistry & Lab, Mass & Energy Balance, Engineering Graphics

## Professional Experience

**Scale AI**　　　　　　　　　　　　　　　　　　　　　　　　　　*San Francisco, CA, U.S.*
Software Engineer Intern (Machine Learning Infrastructure Team)　　　　　　*May 2023- Aug 2023*
- Transformed existing model serving endpoints from a single-container to a multi-container architecture in Kubernetes, enhancing code structure, security, and developer workflow.
- Revitalized the internal model serving endpoints management dashboard using React, Tailwind CSS, and Express, thereby improving the developer experience for Machine Learning Engineers.

**Numbers Protocol**　　　　　　　　　　　　　　　　　　　　　*(Remote) Taipei, Taiwan*
Decentralized Data System Developer Intern　　　　　　　　　　　　　　*Feb 2022 - Mar 2022*
- Built the wallet page in Capture App that shows NUM balance and allow users to transfer NUM between custodial and non-custodial wallets.
- Developed a network application that stores media asset in the InterPlanetary File System (IPFS)/Filecoin network through Web3.Storage.
- Used Typescript, Angular, RxJS, Ionic, Bubble, AWS Lambda and API Gateway.

**Facebook (Meta)**　　　　　　　　　　　　　　　　　　　　　*(Remote) Menlo Park, CA, U.S.*
Software Engineer Intern (Knowledge Infrastructure Team)　　　　　　　　*Sep 2021- Dec 2021*
- Optimized knowledge graph pre-build process speed by 7x. (Some component up to 36x.) Saved about 10 hours of developer time each week.
- Rewrote a 1400-line shell script that starts knowledge graph build into an efficient and user-friendly Golang Cobra command line interface.
- Refactor 2000+ lines of Golang code in our knowledge graph core infrastructure code base.

**Amazon**　　　　　　　　　　　　　　　　　　　　　　　　　*(Remote) Seattle, WA, U.S.*
Software Development Engineer Intern (Tax Engine Team)　　　　　　　　　*May 2021- Aug 2021*
- Devised a standard operating procedure (SOP) for an issue accounting for 20% of our team's tickets with a business impact of € 1 million/month.
- Built an internal web app using Typescript, React, Java, and AWS that reduces the cycle time of tickets from a few weeks to a couple of days or less.
- Conducted detailed customer research and root cause analysis with multiple business and engineering teams across US, Europe, India, and Japan.

**EyeLevel.ai**　　　　　　　　　　　　　　　　　　　　　　　　*(Remote) Berkeley, CA, U.S.*
Data Engineer Intern　　　　　　　　　　　　　　　　　　　　　　*Jul 2019 - Sep 2019*
- Built an internal tool with Python, Node.js, Postgres SQL that fetches conversation data from Facebook Graph API to analyze conversations and provides statistical results.
- Conducted statistical analysis to obtain valuable insights into drop-offs, inconsistency, and dead-ends in conversations.

**YektaSonics Inc**　　　　　　　　　　　　　　　　　　　　　　*Los Gatos, CA, U.S.*
Software Engineer Intern　　　　　　　　　　　　　　　　　　　　　*Aug 2019 - Sep 2019*
- Optimized C++/Python/Arduino beam-former calibration software with inter-process communication (IPC) and some code refactoring, making it 10x faster.
- Wrote shell scripts to automate beam-former software testing.

## Research

### Pareto-Secure ML: Fingerprinting and Securing Inference Serving Systems  *Georgia Institute of Technology*

SYSTEMS FOR ARTIFICIAL INTELLIGENCE LAB - PROF. ALEXEY TUMANOV

- Devised a query-efficient fingerprinting algorithm capable of victimizing and consistently triggering the same model within a model zoo served by a model-less ML model inference serving system.
- Built a shim layer in C++ over Clockwork, a leading ML model inference serving system, enabling a model-less inference API. This allows users to specify accuracy and latency requirements without the need to choose a specific model.
- Submitted the resulting paper to the USENIX Security Symposium 2024.

### Examinator v3.0: Cheating Detection in Online Take-Home Exams  *Georgia Institute of Technology*

EDUCATION TECHNOLOGY LAB @ GT - PROF. THAD STARNER

- Analyzed 1.6 million pairs of exam submissions and performs statistical analysis, knowledge-based pattern matching, and machine learning prediction in Python, identifying 80 instances of cheating.
- The paper is accepted at Learning at Scale (L@S) 2023 Conference.

## Technical Project

**Zlind** is an online forum leveraging zero-knowledge (ZK) proof to enable people to share and connect fearlessly and anonymously. People can sign-up using their work or school email, post or comment anonymously while proving that they belong to a specific company or school, and optionally reveal themselves later on if they want. I used Next.js, Tailwind CSS, tRPC, Prisma, Supabase, and Semaphore ZK protocol.

**Royal Demons** is a Dungeon Crawler game written in Java that won the Best Project Competition out of a total of 114 teams in Gatech Objects and Design course. Implemented maps, procedural generation, doors, spawning enemies, dropping items, NPC, and some UI. Demo video here.

**The Emoroid Digest App** is a mobile application written in Flutter for doctors and practitioners in the field of gastroenterology to stay current with the latest guidelines and best practices released by various medical societies. We won the 1st place at Georgia Tech CS Junior Design Capstone. I was the project manager and technical lead.

## Awards & Honors

**U.S. National Top 30 -** 2019 American Mathematical Association of Two-Year Colleges (AMATYC) Math Competition
**Faculty Honors -** For all semesters at Georgia Tech
**Dean's List -** For all quarters at De Anza College
**Presidential Award (Top 5% in class) -** For both semesters at National Taiwan University

## Technical Skills

**Programming Languages:** Python, C/C++, Golang, Java, Typescript/javascript, SQL, HTML, CSS + I can learn anything
**Frameworks & Tools:** AWS (Certified Developer Associate), GCP, Docker, Kubernetes, Express, Flask, Django, React, Next.js, tRPC, PostgreSQL

## Extracurricular/Volunteer Experience

### Blockchain at Georgia Tech  *Atlanta, Georgia*

DEVELOPER COMMITTEE MEMBER  *Aug 2022 - Now*

- Built Zero-Knowledge Sudoku, Wordle, and Trivia Game in Noir and Aleo. My repo is included in https://github.com/noir-lang/awesome-noir and https://github.com/howardwu/awesome-aleo
- Web 3 ATL Hackthon Solidity Sprint 1st place
- Maximal extractable value (MEV) side project

### Silicon Valley Career Women  *Sunnyvale, California*

PRODUCT ENGINEER INTERN  *Oct 2019 - Feb 2020*

- Used Final Cut Pro to edit videos for "Women Leadership Enhancement" video program.
- Developed and enhanced video and audio products.

### De Anza Computer Science Department  *Cupertino, California*

TEACHING ASSISTANT  *Apr 2019 - Jun 2020*

- In-class TA for Intermediate and Beginning Programming Methodologies in C++.
- Took notes during classes and gathered extra learning resources for students.
- Resolved students' problems during classes and from their homework.
- Designed surveys and collected feedback, identified opportunities for improvement and executed effective strategies to address deficiencies.

### De Anza Flea Market  *Cupertino, California*

FLEA MARKET ASSISTANT  *May 2019 - Jun 2020*

- Provided gate-keeping support, verified event tickets and vendor information, responded to inquiries about space location, and assisted in the flea market operation.

### National Aeronautics and Space Administration (NASA)
*Remote/Online*

Student Principal Investigator - NASA Proposal Writing & Evaluation Experience Academy
*Sep 2019 - Nov 2019*

- Led a team of 7 college STEM major students to design and write a 7-page proposal about an "Advanced Virtual Reality Exercise System" that helps astronauts achieve 100%+ prescribed exercise completion rate.
- Our proposal was one of the top 4 rated among around 15 proposals.
- Learned the best practice of writing professional proposals and proposal evaluation procedures from NASA.

### Competitive Programming Club @ De Anza College
*Cupertino, California*

Co-President
*May 2019 - Jan 2020*

- Won the 14th place out of 86 teams in 2019 ACM International Collegiate Programming Contest (ICPC) Pacific Northwest Division 2.
- Hosted weekly training sessions to help members hone their algorithm, data structure, and problem-solving skills.

### National Aeronautics and Space Administration (NASA)
*Remote/Online*

NASA Lucy Student Pipeline Accelerator and Competency Enabler (L'SPACE) Mission Concept Academy
*May 2019 - Aug 2019*

- Remotely cooperated with STEM major students to design a mission concept of characterizing a hydrocarbon sea (mare) on Titan, the largest moon of Saturn, and write a 35-page Preliminary Design Review (PDR).
- Used JMARS (a Planetary GIS Software) to find the best landing site for our probe.
- Learned mission procedures and protocols from NASA engineers and scientists.

### Global Initiatives Symposium (GIS) in Taiwan at National Taiwan University (NTU)
*Taipei, Taiwan*

Student Delegate
*Jul 2018*

- Collaborated with team members to propose an AI system that mitigated overcrowding in emergency rooms by optimizing triage and providing medical referrals suggestion.
- Listened to inspiring speeches given by professionals and industry experts from around the world about AI, the platform economy, personalized learning, and micro power.

### Taiwan Semiconductor Manufacturing Company (TSMC)
*Hsinchu, Taiwan*

Taiwan Semiconductor Manufacturing Company Elite Camp
*Jul 2018*

- Learned the cutting edge development and application of semiconductors and visited the TSMC Museum of Innovation.
- Interacted with employees at TSMC and professors working with TSMC.

### Association of Taiwan University Alumni in MACAU
*Shanghai, China*

Student Leader Delegation of ATUAM
*Jul 2018*

- Proposed holding social activities in universities to stimulate social atmosphere for students to build new connections for an entrepreneurship competition.
- Visited Shanghai Jiao Tong University, the T-MAKERS incubator, and a cultural and creative park.

### Tri-Service General Hospital Songshan Branch
*Taipei, Taiwan*

Emergency Room Volunteer Orderly
*Sep 2017 - Sep 2018*

- Delivered blood, medical specimens to the medical laboratory.
- Guided patients to X-Ray rooms, CT scan rooms, and wards.
- Collected medicine on patients' behalf at the pharmacy.
- Provided any assistance to emergency room staff when necessary.

### Biology Club, Taipei Municipal Jianguo High School
*Taipei, Taiwan*

President
*Sep 2015 - Jun 2016*

- Organized and ran a six-day biology summer camp consisting of lectures, visits, and activities. Our summer camp attracted around 120 junior high school students and was nominated for high school creative proposal competition held by the Tang Prize, receiving a subsidy of US$3300.
- Managed more than 100 club members. More than 50 biology classes were offered by my club every semester.