Chris Chien

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Education

University of California, Los Angeles [Los Angles, CA] GPA: **3.65** / 4.00

Doctor of Philosophy | Electrical and Computer Engineering Dec. 2023 [left]

Master of Science | Electrical and Computer Engineering Jun. 2020

University of Illinois, Urbana-Champaign [Champaign, IL] GPA: **3.79** / 4.00

One-year Exchange | Electrical and Computer Engineering Jun. 2017

National Chiao Tung University (NCTU, now NYCU) [Hsinchu, Taiwan] GPA: **3.92** / 4.00

Bachelor of Science | Electrophysics (1/62 Ranking; Top 1.6% in the class) Jun. 2017

Research Experience

National Yang Ming Chiao Tung University (NYCU)

Computer Vision: 4D/3D Scene Reconstruction Oct. 2024 – Now

- Working with Prof. Yu-Lun Liu and Prof. Wei-Lun (Harry) Chao.
- Developed space-time supervision to reconstruct near-static monocular videos by supervising unobserved timestamps.
- Achieved real-time rendering with improved quality while integrating into other methods without inference overhead.
- Investigated primitive allocation pattern and identified color variation as a factor influencing density distribution.

University of California, Los Angeles (UCLA)

Keylogging in Virtual Reality Oct. 2022 – Jun. 2023

- Achieving keylogging of a fully virtual keyboard in virtual reality world.
- Detecting hand pinching timing with a single camera view using Mediapipe hand tracking and estimation.
- Investigating and estimating pinching direction toward the keyboard and corresponding keys.

Non-invasive, Lightweight, Privacy Framework for Visual Invasion Jan. 2022 – Sep. 2022

- Created a masking mechanism to remove private objects in images, scalable to larger neural networks.
- Incorporated computation under constraints to optimize three-way tradeoffs of privacy, accuracy, and latency.
- Evaluated the tradeoff of computation and accuracy under computational constraints of edge devices.

Adversarial Representation Learning for Large Models Aug. 2020 – Dec. 2021

- Built a discriminative framework to preserve private information in an object detection model (Single Shot Detection).
- Optimized and evaluated preservation of private information with different hyperparameter settings.
- Analyzed privacy-preserving effectiveness of different discriminative designs for the model.

National Chiao Tung University (NCTU, now NYCU)

Magnetic Property of Nickel Silicide thin film on (100) Si P-Boron Oct. 2015 – May. 2016

- Made samples material properties through standard fabrication process in the lithography laboratory.
- Analyzed the samples composition by Scanning Electron Microscope and X-Ray Diffractometer.
- Acquired program knowledge of HighScore Plus and Origin Pro.

Projects

Twitter Data Analysis [Python] Feb. 2020 – Mar. 2020

- Performed statistical analysis on tweet metadata for 6 hashtags used in 2015 Superbowl game.
- Designed regressors models including Linear, Random Forest, Multi-layer Perceptron using scikit-learn API.
- Achieved 76% accuracy by using Random Forest to predict 6 hashtags of the tweet based on GPS location data.

Quantization and Pruning Model Architecture [TensorFlow, TVM, LLVM] Jan. 2020 – Mar. 2020

- Analyzed fixed point 8-bit, rounding-based/offset-based methods for quantization. (model: SqueezeNet v1.1).
- Tuned the 8-bit fraction position to keep the top 5 accuracy dropping within 6%.
- Fine-tuned the pruning method to achieve 20% of the original size within 1% accuracy drop.

Collaborative Filtering Analysis [Python] Jan. 2020 – Feb. 2020

- Analyzed filtering methods for the Movie-Lens dataset to predict future movie ratings from users.

- Analyzed performance of neighborhood-based collaborative filtering, Pearson-correlation coefficient, k-NN searches, Non-Negative Matrix Factorization (NNMF) and Matrix Factorization with bias (MF-bias).

Image Restoration with Deep Priors [TensorFlow] Sep. 2019 – Dec. 2019

- Used the unrolled optimization deep priors (OPD) framework to iteratively solve for latent images.
- Deconvolved images subjected to different kernels (Additive white Gaussian noise, motion blur, and out-of-focus disk kernels) with an average 5 PSNR increase.

Deep Learning Architecture Optimization [Pytorch] Sep. 2019 – Dec. 2019

- Classified 2,115 trials of 2D electroencephalogram (EEG) data into 4 motor imagery classes.
- Analyzed data with networks of modeling dynamic, time-variant systems, including CNN, RNN, LSTM, and GRU.
- Achieved accuracy over 60% with 2D spatio-temporal CNN architecture and over 50% with RNN.

A. Publication

Total: 4 publications (2 Journal Articles, 2 Conference Papers)

- **Splannequin: Freezing Monocular Mannequin-Challenge Footage with Dual-Detection Splatting**
  Hao-Jen Chien, Yi-Chuan Huang, Chung-Ho Wu, Wei-Lun Chao, Yu-Lun Liu
  WACV 2026 (Winter Conference on Applications of Computer Vision)
- **Virtual Keymysteries Unveiled: Detecting Keystrokes In VR With External Side-Channels**
  Hossein Khalili, Alexander Chen, Theodoros Papaiakovou, Timothy Jacques, Hao-Jen Chien, Changwei Liu, Aolin Ding, Amin Hass, Saman Zonouz, Nader Sehatbakhsh
  IEEE SPW 2024 (IEEE Security and Privacy Workshops)
- **Enc2: Privacy-Preserving Inference for Tiny IoTs via Encoding and Encryption**
  Hao-Jen Chien, Hossein Khalili, Amin Hass, Nader Sehatbakhsh
  MobiCom 2023 (The 30th Annual International Conference on Mobile Computing and Networking)
- **Context-Aware Hybrid Encoding for Privacy-Preserving Computation in IoT Devices**
  Hossein Khalili, Hao-Jen Chien, Amin Hass, Nader Sehatbakhsh
  IoT-J 2023 (IEEE Internet of Things Journal)

Work Experience

[Internship] Micron, Product Engineer [Folsom, CA] Jun. 2019 – Sep. 2019

- Analyzed electrical failures by collecting data such as data corruption and leakages on the bench station.
- Helped characterize the quantification and identification of the new product.
- Acquired knowledge of 3D memory structure, cell operations, and its characterizations.
- Scripted for extracting back-end data by understanding the data structure.
- Acquired knowledge of bash, the software JMP, and Visual Basic.

Awards

- [2021] Graduate Dean's Scholar Award from University of California, Los Angeles.
- [2017] The Phi Tau Phi Scholastic Honor Society of the Republic of China.
- [2016] Overseas Study Fellowship of Students of Academic Excellence.
- [2013-2016] 5 Academic Achievement Awards out of 6 semesters from National Chiao Tung University.
- [2013] The Chairman of Wintek Technology Full Admission Scholarship for National Chiao Tung University.

Skills

- **Software and Programming:** Pytorch | TensorFlow | Python | C++ | MATLAB | HTML | Git
- **Artificial Intelligence:** Deep Learning | Computer Vision Models | Model Optimization | Reinforcement Learning
- **Math & Physics:** Probability | Quantum Mechanics | Linear Algebra | Semiconductor Devices