

CHING-YUAN BAI

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EDUCATION

University of California, Los Angeles

Sep 2021 – Exp. Jun 2026

Ph.D. in Computer Science (advised by Prof Cho-Jui Hsieh).

National Taiwan University (Taipei, Taiwan)

Sep 2016 – Jan 2021

B.S. in Computer Science and Information Engineering.

Minor in Mechanical Engineering.

· GPA: 4.2/4.3

RWTH Aachen (Aachen, Germany)

Oct 2019 – Mar 2020

Undergraduate exchange student

PUBLICATIONS

- **C.-Y. Bai**, H.-T. Lin, C. Raffel, and W. Kan “On training sample memorization: Lessons from benchmarking generative modeling with a large-scale competition.” In *Proceedings of the 27th ACM SIGKDD International Conference on Knowledge Discovery and Data Mining (KDD)*, August 2021.
- S.-L. Wu*, **C.-Y. Bai***, K.-C. Chang, Y.-T. Hsieh, C. Huang, C.-W. Lin, E. Kang, and Q. Zhu “Efficient system verification with multiple weakly-hard constraints for runtime monitoring.” In *Proceedings of the International Conference on Runtime Verification*, Oct 2020.
- **C.-Y. Bai**, B.-F. Chen, and H.-T. Lin “Benchmarking Tropical Cyclone Rapid Intensification with Satellite Images and Attention-based Deep Models.” In *Proceedings of the The European Conference on Machine Learning and Principles and Practice of Knowledge Discovery in Databases*, Sep 2020.

RESEARCH EXPERIENCE

Dept. of Computer Science and Engineering, NTU (Taipei, Taiwan) Mar 2020 – Jan 2021
Research Assistant (advised by Prof. Chung-Wei Lin)

- Designed falsification algorithms for discrete, switch controllers compatible with various controller types including neural network-based.
- Designed verification algorithms for systems subject to weakly-hard fault models achieving state-of-the-art performance and easily extendable to system runtime monitoring.

Dept. of Computer Science and Engineering, NTU (Taipei, Taiwan) Jun 2018 – Jan 2021
Research Assistant (advised by Prof. Hsuan-Tien Lin)

- Conducted research on investigating the relationship between learning and memorization for Generative Adversarial Networks (GANs) training.
- Conducted joint research with Kaggle on generative adversarial model performance metric design and successfully held the first-ever public large-scale generative modeling competition.
- Proposed novel deep learning model inspired by meteorology domain knowledge for tropical cyclone rapid intensification prediction using only satellite image data and achieved comparable performance.
- Improved accuracy of cyclone intensity regression task by 20% with a recurrent framework.

Institute of Information Science, Academia Sinica (Taipei, Taiwan) Mar 2018 – Feb 2019
Research Assistant (advised by Prof. Wen-Lian Hsu)

* These authors contributed equally to this work

- Improved algorithms for zero-anaphora rewriting in Chinese elementary school mathematics problems, achieving 85% accuracy.
- Designed novel algorithms for NLP syntactic sentence clustering with multi-labeled data based on recursive longest common sequence generation.

GRANTS AND FELLOWSHIP

Kaggle, Alphabet Inc. Jul 2019 – Aug 2019
Generative Adversarial Network Research Grant

- Funding for holding the Kaggle Generative Dog Images competition

Taiwan Ministry of Science and Technology (MOST) Jul 2019 – Feb 2020
MOST Research Grant for University Students

- Funding for tropical cyclone rapid intensification prediction resesarch

HONORS AND AWARDS

Dean's List Award for 6 semesters Sep 2016 – Jun 2020

- GPA ranked top 5% in the department.

Enterprise Award (1st/50 groups), Pixnet Hackathon Aug 2018

- Built fast speech query device (maximum of 3-second latency) for querying directions at a bus stop, utilizing principle-based semantic parsing.
- Designed user-friendly deployment method for easy implementation in real life.

WORK EXPERIENCE

WorldQuant Research LLC, Taiwan Branch (Taipei, Taiwan) Aug 2020 – Feb 2021
Quantitative Analysis Research Intern

- Conducted research on application of deep learning techniques on alpha design with robust performance.

Taiwan Artificial Intelligence Lab (Taipei, Taiwan) Jan 2019 – Aug 2019
Machine Learning Research Intern

- Experimented with techniques to improve object detection on medical images based on Retina-Net.
- Experimented with sparse segmentation model in medical image annotation task and proposed modification to better detect soft boundaries. The models are now online in the largest hospitals in Taiwan.
- Familiarized with good practices for full software development cycle, including building docker images, Ansible automation, code review, git source control management, etc.
- Designed user-friendly front end UI for genomics analysis workflow tools with React.

TECHNICAL STRENGTHS

- Fluent in programming languages including C, C#, Python, Javascript
- Proficient in English language (TOEFL iBT 112, GRE 328 AW 4.5)
- Capable of efficiently implementing models with deep learning libraries (Tensorflow and Pytorch)
- Familiar with theoretical machine learning theory (statistical and online)