

Yi-Wei Chen

PH.D. CANDIDATE

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Research Focus

Defect detection, hyperparameter optimization, early stopping, neural architecture search, object detection, video generation, distributed optimization, label noise, Bayesian optimization, distributed system, embedded system.

Education

Texas A&M University

PH.D. CANDIDATE IN COMPUTER SCIENCE AND ENGINEERING

- GPA: 4.0/4.0

College Station, U.S.A.

Aug. 2018 -

National Taiwan University (NTU)

M.S. IN COMPUTER SCIENCE AND INFORMATION ENGINEERING

- GPA: 4.04/4.30
- Thesis: Virtual Hadoop: MapReduce over Docker Containers with an Auto-Scaling Mechanism for Heterogeneous Environments

Taipei, Taiwan

Feb. 2014 - Sep. 2015

National Taiwan University (NTU)

B.S. IN ELECTRICAL ENGINEERING

- GPA: 3.79/4.00 (84.25/100)

Taipei, Taiwan

Sep. 2008 - Jun. 2012

Work Experience

Data Analytics at Texas A&M (DATA) Lab

RESEARCH ASSISTANT

- Discovered memory-efficient auto-encoders for surface defection detection by evolutionary search, reducing 4x network parameters.
- Deployed tiny YOLOv1 (432KB) to MAXIM78000 edge device with Camera input and LCD output.
- Invented a model parallelism for neural architecture search with 1.18x speedup.
- Designed a novel neural architecture search, which improved 3% accuracy under high-level symmetric label noise.
- Wrote a survey of Automated Machine Learning, including automated feature engineering, hyperparameter tuning, and neural architecture search.

College Station, U.S.A.

Aug. 2018 -

Amazon.com

APPLIED SCIENTIST INTERN

- Built an auto video generation framework to animate image highlights for hundreds of miscellaneous product categories.
- Established the image filter using ResNet to exclude text-intensive images.
- Designed text and geometric object detectors using Amazon Rekognition and DeepLab to capture headlines, descriptions, and rectangular subjects.
- Utilized Navier-Stokes inpainter and OpenShot animator to animate captured subjects in product images.
- Accelerated the video generation from 30 minutes (human) to 3 minutes (our framework), getting 10x speedup.

Seattle, U.S.A.

Sep. 2021 - Jan. 2022

Microsoft Corporation

RESEARCH INTERN

- Proposed adaptive constraint early stopping (ACE) algorithm to find optimal hyperparameters under specific constraints.
- Modeled the expected evaluation cost to tailor the constraint interval to different constraint cost.
- Developed stratum early stopping by using constraint violations.
- Improved feasible AUC of LGBM model from 0.801 to 0.852, getting 6% improvement.

Redmond, U.S.A.

May. 2021 - Aug. 2021

Publications

JOURNAL PAPER

- Yi-Wei Chen**, Qingquan Song, Xi Liu, P.S. Sastry, Xia Hu, "On Robustness of Neural Architecture Search under Label Noise", *Frontiers in Big Data*, Jan. 2020
- Yi-Wei Chen**, Qingquan Song, Xia Hu, "Techniques for Automated Machine Learning", *ACM SIGKDD Explorations Newsletter*, Dec. 2020

CONFERENCE PAPER

- Yi-Wei Chen**, Chi Wang, Amin Saied, Rui Zhuang, "ACE: Adaptive Constraint-aware Early Stopping in Hyperparameter Optimization", *ACM SIGKDD AutoML Workshop*, Washington, DC, USA, Aug. 2022
- Yi-Wei Chen**, Shih-Hao Hung, Chia-Heng Tu, Chih Wei Yeh, "Virtual Hadoop: MapReduce over Docker Containers with an Auto-Scaling Mechanism for Heterogeneous Environments", *2016 Research in Adaptive and Convergent Systems (RACS)*, Odense, Denmark, Oct. 2016

Technical Skills

Languages Python, C, Bash, Java, C++, Ruby, HTML, PHP, Verilog, MATLAB

Tools PyTorch, Scikit-Learn, Git, Perforce, Trello, JIRA, Latex, Docker, Flask, Django, Ruby-on-Rails, Hadoop