

CHENG-EN WU

CONTACT INFORMATION	1415 Engineering Dr Madison, WI 53706	Email: cwu356@wisc.edu Webpage: https://cewu.github.io
RESEARCH INTERESTS	My research interests lie at the intersection of computer vision and deep learning. I focus on Code Large Language Models (Code LLMs), Multimodal Large Language Models (MLLMs), and improving the efficiency of self-supervised learning models in both training and inference.	
EDUCATION	University of Wisconsin-Madison Ph.D. student in Electrical and Computer Engineering Advised by Prof. Pedro Morgado and Prof. Yu Hen Hu	2020 – 2025 (Expected)
	National Tsing Hua University M.S. in Computer Science Advised by Prof. Jia-Shung Wang	2014 – 2016
	National Taiwan University of Science and Technology B.S. in Electrical and Computer Engineering	2009 – 2012
WORK EXPERIENCE	Microsoft , Redmond, WA <i>Research Intern</i> Mentors: Yunsheng Li, Weijian Xu, Mengchen Liu <ul style="list-style-type: none">Designed a post-training pipeline to enhance the performance of Code Large Language Models (Code LLMs).Developed a Referring Expression Comprehension (REC) dataset to improve zero-shot performance on RefCOCO datasets.	Spring 2024 – Winter 2024
	TikTok , San Jose, CA <i>Research Intern</i> Mentors: Yu Tian, Linjie Yang, Haichao Yu, Heng Wang <ul style="list-style-type: none">Studied an unsupervised prompt tuning method for vision-language pre-trained models, improving adaptation to downstream tasks. (ICCV'23)	Summer 2022
	University of Wisconsin-Madison , Madison, WI <i>Research Assistant</i> Advisors: Prof. Pedro Morgado and Prof. Yu Hen Hu <ul style="list-style-type: none">Proposed a prototype-driven curriculum learning approach for Masked Image Modeling (MIM) to address early-stage optimization challenges in self-supervised visual learning. (CVPR'25)Developed acceleration methods for Vision Transformer (ViT) contrastive learning, reducing computational costs through sequence compression strategies while maintaining performance. (NeurIPS'24)Proposed a token pruning framework for Vision-language Pre-trained Models (WACV'25)Proposed block pruning techniques to enhance the efficiency of Convolutional Neural Networks.	Spring 2022 – Present
	NEC Labs America , Princeton, NJ <i>Research Intern</i> Mentors: Farlay Lai, Asim Kadav <ul style="list-style-type: none">Proposed a self-supervised video representation learning framework using cascade positive retrieval to enhance contrastive learning and reduce reliance on labeled data. (CVPRW'22)	Summer 2021
	Academia Sinica , Taipei, Taiwan <i>Research Assistant</i> Advisor: Prof. Chu-Song Chen <ul style="list-style-type: none">Developed continual learning methods for CNNs using model compression, critical weight selection, and progressive expansion to mitigate catastrophic forgetting. (NeurIPS'19)Designed efficient deep learning architectures for visual recognition tasks. (MMSP'19)	2018 – 2020

MediaTek , Hsinchu, Taiwan <i>Software Engineer</i> Improved the computational efficiency of neural networks on mobile devices and developed mobile GPU drivers to boost run-time of applications using neural networks.	2017 – 2018
Realtek , Hsinchu, Taiwan <i>Software Engineer</i> Developed H.264 encoder drivers for TV SOC's.	2016 – 2017
ITRI , Hsinchu, Taiwan <i>Research Intern</i> Developed MultiPath TCP to achieve high throughput of wireless networks.	Summer 2015
National Tsing Hua University , Hsinchu, Taiwan <i>Research Assistant</i> Collaborated with Jia-Shung Wang on real-time vehicle tracking system for visual surveillance.	2014 – 2016
GOTrust Technology , Taichung, Taiwan <i>Software Engineer</i> Developed middlewares for the secure MicroSD card and established an MFC-based testing tool for the production of secure MicroSD cards.	2014

PUBLICATIONS

From Prototypes to General Distributions: An Efficient Curriculum for Masked Image Modeling
Conference on Computer Vision and Pattern Recognition (CVPR) 2025
 Jinhong Lin*, **Cheng-En Wu***, Huanran Li, Jifan Zhang, Yu Hen Hu, Pedro Morgado (*equal contribution)

Patch Ranking: Efficient CLIP by Learning to Rank Local Patches
Winter Conference on Applications of Computer Vision (WACV) 2025
Cheng-En Wu, Jinhong Lin, Yu Hen Hu, Pedro Morgado

Accelerating Augmentation Invariance Pretraining
Conference on Neural Information Processing Systems (NeurIPS) 2024
 Jinhong Lin, ***Cheng-En Wu**, Yibing Wei, Pedro Morgado (*equal contribution)

Why Is Prompt Tuning for Vision-Language Models Robust to Noisy Labels?
International Conference on Computer Vision (ICCV) 2023
Cheng-En Wu, Yu Tian, Haichao Yu, Heng Wang, Pedro Morgado, Yu Hen Hu, Linjie Yang

Block Pruning for Enhanced Efficiency in Convolutional Neural Networks
arXiv preprint 2023
Cheng-En Wu, Azadeh Davoodi, Yu Hen Hu

Self-supervised Video Representation Learning with Cascade Positive Retrieval
L3D-IVU Workshop at Conference on Computer Vision and Pattern Recognition (CVPR) 2022
Cheng-En Wu, Farley Lai, Yu Hen Hu, Asim Kadav

Merging Well-Trained Deep CNN Models for Efficient Inference
Conference on Asia Pacific Signal and Information Processing Association (APSIPA) 2020
Cheng-En Wu, Jia-Hong Lee, Timmy ST Wan, Yi-Ming Chan, Chu-Song Chen

Extending Conditional Convolution Structures For Enhancing Multitasking Continual Learning
Conference on Asia Pacific Signal and Information Processing Association (APSIPA) 2020

*Cheng-Hao Tu ***Cheng-En Wu**, Chu-Song Chen (*equal contribution)

Compacting, Picking and Growing for Unforgetting Continual Learning

Conference on Neural Information Processing Systems (NeurIPS) 2019

Steven Hung, Cheng-Hao Tu, **Cheng-En Wu**, Chien-Hung Chen, Yi-Ming Chan, Chu-Song Chen

IMMVP: An Efficient Daytime and Nighttime On-Road Object Detector

IEEE International Workshop on Multimedia Signal Processing (MMSP) 2019

Cheng-En Wu, Yi-Ming Chan, Chien-Hung Chen, Wen-Cheng Chen, Chu-Song Chen

On Merging MobileNets for Efficient Multitask Inference

EMC² Workshop at IEEE Symposium on High Performance Computer Architecture (HPCA) 2019

Cheng-En Wu, Yi-Ming Chan, Chu-Song Chen

Traffic pattern modeling, trajectory classification and vehicle tracking within urban intersections

IEEE International Smart Cities Conference (ISC2) 2017

Cheng-En Wu, Wen-Yen Yang, Hai-Che Ting, Jia-Shung Wang

PROFESSIONAL
SERVICES

Reviewer: WACV '19, WACV '20, WACV '21, CVPR '22, ECCV '22, NeurIPS '22, CVPR '23, ICCV '23, CVPR '24, ECCV '24, NeurIPS'24, ICLR'25, ICML'25, CVPR'25

HONORS AND
AWARDS

Honorable Mention at the MMSP Challenge	2019
Delta Electronics Scholarship	2016
NTUST ECE Undergraduate Honorable Mention for Research	2012

SELECTED
PROJECTS

Edge AI 2022 – Present
University of Wisconsin-Madison
Developed innovative block pruning methods for Convolutional Neural Networks, enabling seamless integration with edge devices like the NVIDIA Jetson Nano.

Urban Computing 2015 – 2016
National Tsing Hua University, Visual Communication Lab
Designed a real-time vehicle tracking method from surveillance camera videos and developed a system for trajectory classification and tracklet prediction.

Gesture Recognition 2010 – 2011
National Taiwan University of Science and Technology
Developed a method for detecting the number of fingers raised and built an Android App for gesture control of PowerPoint presentations.

SKILLS

Computer Languages: C, C++, Bash, Python, MATLAB, \LaTeX .
Toolbox/Software: PyTorch, TensorFlow
Languages: Chinese Mandarin (Native), English (Fluent)