

WEI-LUN (HARRY) CHAO

CONTACT INFORMATION

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<https://github.com/pujols>

CURRENT POSITION

Distinguished Assistant Professor of Engineering Inclusive Excellence (tenure-track), Aug. 2019 – present
Computer Science and Engineering (CSE), Ohio State University (OSU), USA

EDUCATION

PhD, Computer Science, University of Southern California (USC), USA Aug. 2013 – Dec. 2018
• Thesis: Transfer Learning for Intelligent Systems in the Wild
• Committee: Fei Sha (Chair), Laurent Itti, Jason Lee, Panayiotis Georgiou, and Joseph Lim
MS, Computer Science, University of Southern California (USC), USA Jan. 2016 – Dec. 2018
PhD, Communication Engineering, National Taiwan University (NTU), Taiwan Sep. 2011 – Sep. 2012
• Transferred to USC
MS, Communication Engineering, National Taiwan University (NTU), Taiwan Sep. 2009 – Jun. 2011
• Thesis: Integrated Machine Learning Algorithms for Human Age Estimation
• Advisor: Jian-Jiun Ding
BS, Communication Engineering, National Chiao Tung University (NCTU), Taiwan Sep. 2005 – Jun. 2009
Exchange Student, Engineering, University of Illinois at Urbana-Champaign, USA Jan. 2009 – May 2009
• Individual Study Advisor: Pierre Moulin

WORK EXPERIENCE

Postdoctoral Associate, Computer Science, Cornell University, USA Aug. 2018 – Jul. 2019
• Advisor: Kilian Q. Weinberger and Mark Campbell
Summer Internship, Microsoft Research, Redmond, USA May 2017 – Aug. 2017
• Mentors: Hoifung Poon, Chris Quirk, and Xiaodong He
Military Service, Ministry of National Defense, Taiwan Aug. 2012 – Jul. 2013
• Second Lieutenant, Chief Counselor of Company

RESEARCH INTERESTS

Machine Learning, Computer Vision, Autonomous Driving, Artificial Intelligence, and Health Care

CURRENT RESEARCH

Machine Learning as the Basis Laboratory (MLB Lab), OSU (Aug. 2019 – present):

- Robust perception for autonomous driving
- Learning with imperfect data (e.g., limited, noisy, inaccessible, imbalanced, and distribution-shifting data)
- Federated learning and personalized learning
- Large-scale visual recognition in the wild
- Transfer learning and domain adaptation
- Healthcare and medical applications
- Imageomics: Machine learning and computer vision for biology
- GM SAE AutoDrive Challenge II (led by Prof. Qadeer Ahmed)

CITATION STATISTICS

(All statistics based on scholar.google.com, manually corrected for errors)

- Total citations of all publications: 6,670
- Total citations of top-three most cited publications: 2,446

RESEARCH EXPERIENCE

Autonomous Driving, with K. Q. Weinberger and M. Campbell, Cornell (Aug. 2018 – Jul. 2019):

- Robust perception for autonomous driving
- Defense against adversarial attacks
- Meta-learning and few-shot learning

Theoretical and Empirical Data Sciences Laboratory (TEDS Lab), USC (Aug. 2013 – Jul. 2018):

- Transfer learning for visual question answering and vision-language related topics
- Zero-shot learning for large-scale object recognition
- Video summarization with determinantal point processes and recurrent neural networks
- Hamiltonian Markov chain Monte Carlo
- Large margin determinantal point processes

Digital Image and Signal Processing Laboratory (DISP Lab), NTU (Sep. 2009 – Jul. 2012):

- Facial age estimation and expression recognition based on manifold and metric learning
- Anti-symmetric Fourier descriptors for boundary compression

Other Research Projects at NTU (Sep. 2009 – Jul. 2012):

- Video retargeting based on seam carving (with Prof. Winston Hsu)
- Color constancy and color correction (with Prof. Soo-Chang Pei)

UIUC (Jan. 2009 – May 2009):

- Video fingerprinting (with Prof. Pierre Moulin)

PUBLICATION

PhD Thesis

Wei-Lun Chao. "Transfer learning for intelligent systems in the wild." USC, Dec. 2018.

MS Thesis

Wei-Lun Chao. "Integrated machine learning algorithms for human age estimation." NTU, Jun. 2011.

Preprints

- [P6] Tianle Chen, Zheda Mai, Ruiwen Li, and Wei-Lun Chao. "Segment Anything Model (SAM) Enhanced Pseudo Labels for Weakly Supervised Semantic Segmentation." arXiv preprint arXiv:2305.05803.
- [P5] Hong-You Chen, Jike Zhong, Mingda Zhang, Xuhui Jia, Hang Qi, Boqing Gong, Wei-Lun Chao, and Li Zhang. "Federated Learning of Shareable Bases for Personalization-Friendly Image Classification." arXiv preprint arXiv:2304.07882.
- [P4] Jike Zhong, Hong-You Chen, and Wei-Lun Chao. "Making Batch Normalization Great in Federated Deep Learning." arXiv preprint arXiv:2303.06530.
- [P3] Wei-Lun Chao*, Han-Jia Ye*, De-Chuan Zhan, Mark Campbell, and Kilian Q. Weinberger. "Revisiting Meta-Learning as Supervised Learning." arXiv preprint arXiv:2002.00573, 2020.
- [P2] Han-Jia Ye, Hong-You Chen, De-Chuan Zhan, and Wei-Lun Chao. "Identifying and Compensating for Feature Deviation in Imbalanced Deep Learning." arXiv preprint arXiv:2001.01385, 2020.
- [P1] Yan Wang, Wei-Lun Chao, Kilian Q. Weinberger, and Laurens van der Maaten. "SimpleShot: Revisiting Nearest-Neighbor Classification for Few-Shot Learning." arXiv preprint arXiv:1911.04623, 2019.

Journals

- [J13] Shuning Jiang, Wei-Lun Chao, Jian Chen, Daniel Haehn, Meng Ling, Ce Shang, and Hanspeter Pfister. "Are Machines More Effective than Humans for Graphical Perception Tasks?" Journal of Vision, 2022.
- [J12] Tai-Hsien Wu, Chunfeng Lian, Sanghee Lee, Matthew Pastewait, Christian Piers, Jie Liu, Fan Wang, Li Wang, Chiung-Ying Chiu, Wenchi Wang, Christina Jackson, Wei-Lun Chao, Dinggang Shen, and Ching-Chang Ko. "Two-Stage Mesh Deep Learning for Automated Tooth Segmentation and Landmark Localization on 3D Intraoral Scans." IEEE Transactions on Medical Imaging, 2022.
- [J11] Shiva Rangwani, Devarshi R Ardeshta, Brandon Rodgers, Jared Melnychuk, Ronald Turner, Stacey Culp, Wei-Lun Chao, and Somashekar G Krishna. "Application of Artificial Intelligence in the Management of Pancreatic Cystic Lesions." Biomimetics, 2022.
- [J10] Han-Jia Ye, Lu Ming, De-Chuan Zhan, and Wei-Lun Chao. "Few-Shot Learning with a Strong Teacher." Transactions on Pattern Analysis and Machine Intelligence (TPAMI), 2022.
- [J9] Lily Etemad, Tai-Hsien Wu, Parker Heiner, Jie Liu, Sanghee Lee, Wei-Lun Chao, Mary Lanier Zaytoun, et al. "Machine learning from clinical datasets of a contemporary decision for orthodontic tooth extraction." Orthodontics & Craniofacial Research, 2021.
- [J8] Jorge D. Machicado, Wei-Lun Chao, David E. Carlyn, Tai-Yu Pan, Sarah Poland, Victoria L. Alexander, Tassiana G.

-
- Maloof, et al. "High performance in risk stratification of intraductal papillary mucinous neoplasms by confocal laser endomicroscopy image analysis with convolutional neural networks (with video)." *Gastrointestinal Endoscopy*, 2021.
- [J7] Vikram Shree, Wei-Lun Chao, and Mark Campbell. "Interactive Natural Language-based Person Search." *IEEE Robotics and Automation Letters (RA-L)*, vol. 5 (2), pp. 1851–1858, 2020.
- [J6] Soravit Changpinyo*, Wei-Lun Chao*, Boqing Gong, and Fei Sha. "Classifier and Exemplar Synthesis for Zero-Shot Learning." *International Journal of Computer Vision (IJCV)*, vol. 128, pp. 166–201, 2020.
- [J5] Brian Wang, Wei-Lun Chao, Yan Wang, Bharath Hariharan, Kilian Q. Weinberger, and Mark Campbell. "LDLS: 3D Object Segmentation through Label Diffusion from 2D Images." *IEEE Robotics and Automation Letters (RA-L)*, vol. 4 (3), pp. 2902–2909, 2019.
- [J4] Wei-Lun Chao, Hanisha Manickavasagan, and Somashekar G Krishna. "Application of artificial intelligence in the detection and differentiation of colon polyps: a technical review for physicians." *Diagnostics*, 2019.
- [J3] Wei-Lun Chao, Jian-Jiun Ding, Jun-Zuo Liu. "Facial expression recognition based on improved local binary pattern and class-regularized locality preserving projection." *Signal Processing*, vol. 117, pp. 1–10, 2015.
- [J2] Wei-Lun Chao, Jun-Zuo Liu, and Jian-Jiun Ding. "Facial age estimation based on label-sensitive learning and age-oriented regression." *Pattern Recognition*, vol. 46, no. 3, pp. 628–641, 2013.
- [J1] Feng-Ju Chang, Soo-Chang Pei, and Wei-Lun Chao. "Color constancy by chromaticity neutralization." *Journal of the Optical Society of America A*, vol. 29, no. 10, pp. 2217–2225, 2012.

Conferences

- [C56] Reza Averly and Wei-Lun Chao. "Unified Out-Of-Distribution Detection: A Model-Specific Perspective." To appear in *ICCV*, 2023.
- [C55] Chan Hee Song, Jiaman Wu, Clayton Washington, Brian M Sadler, Wei-Lun Chao, and Yu Su. "LLM-planner: Few-shot grounded planning for embodied agents with large language models." To appear in *ICCV*, 2023.
- [C54] Jihyung Kil, Soravit Changpinyo, Xi Chen, Hexiang Hu, Sebastian Goodman, Wei-Lun Chao, and Radu Soricut. "PreSTU: Pre-training for scene-text understanding." To appear in *ICCV*, 2023.
- [C53] Mohannad Elhamod, Mridul Khurana, Harish Babu Manogaran, Josef C. Uyeda, Meghan A. Balk, Wasila Dahdul, Yasin Bakış, Henry L. Bart Jr., Paula M. Mabee, Hilmar Lapp, James P. Balhoff, Caleb Charpentier, David Carlyn, Wei-Lun Chao, Charles V. Stewart, Daniel I. Rubenstein, Tanya Berger-Wolf, Anuj Karpatne. "Discovering Novel Biological Traits From Images Using Phylogeny-Guided Neural Networks." *KDD*, 2023.
- [C52] Cheng-Hao Tu, Zheda Mai, and Wei-Lun Chao. "Visual Query Tuning: Towards Effective Usage of Intermediate Representations for Parameter and Memory Efficient Transfer Learning." *CVPR*, 2023.
- [C51] Hong-You Chen, Yandong Li, Yin Cui, Mingda Zhang, Wei-Lun Chao, and Li Zhang. "Train-Once-for-All Personalization." *CVPR*, 2023.
- [C50] Tai-Yu Pan, Qing Liu, Wei-Lun Chao, and Brian L. Price. "Towards Open-World Segmentation of Parts." *CVPR*, 2023.
- [C49] Ziwei Li, Jiayi Xu, Wei-Lun Chao, and Han-Wei Shen. "Visual Analytics on Network Forgetting for Task-

Incremental Learning." Eurographics Conference on Visualization (EuroVis), 2023.

- [C48] Hong-You Chen, Cheng-Hao Tu, Ziwei Li, Han-Wei Shen, and Wei-Lun Chao. "On the Importance and Applicability of Pre-Training for Federated Learning." ICLR, 2023.
- [C47] Junan Chen, Josephine Monica, Wei-Lun Chao, and Mark Campbell. "Probabilistic Uncertainty Quantification of Prediction Models with Application to Visual Localization." ICRA, 2023.
- [C46] Youya Xia, Josephine Monica, Wei-Lun Chao, Bharath Hariharan, Kilian Q. Weinberger, and Mark Campbell. "Image-to-Image Translation for Autonomous Driving from Coarsely-Aligned Image Pairs." ICRA, 2023.
- [C45] Cheng-Hao Tu, Hong-You Chen, David Carlyn, and Wei-Lun Chao. "Learning Fractals by Gradient Descent." AAAI, 2023.
- [C44] Yurong You, Cheng Perng Phoo, Katie Z Luo, Travis Zhang, Wei-Lun Chao, Bharath Hariharan, Mark Campbell, and Kilian Q. Weinberger. "Unsupervised Adaptation from Repeated Traversals for Autonomous Driving." NeurIPS, 2022.
- [C43] Cheng Zhang, Tai-Yu Pan, Tianle Chen, Jike Zhong, Wenjin Fu, and Wei-Lun Chao. "Learning with Free Object Segments for Long-Tailed Instance Segmentation." ECCV, 2022.
- [C42] Chan Hee Song, Jihyung Kil, Tai-Yu Pan, Brian Sadler, Wei-Lun Chao, and Yu Su. "One Step at a Time: Long-Horizon Vision-and-Language Navigation with Milestones." CVPR, 2022.
- [C41] Yurong You, Katie Luo, Cheng Perng Phoo, Wei-Lun Chao, Wen Sun, Bharath Hariharan, Mark Campbell, and Kilian Q. Weinberger. "Learning to Detect Mobile Objects from LiDAR Scans Without Labels." CVPR, 2022.
- [C40] Carlos Diaz-Ruiz, Youya Xia, Yurong You, Jose Nino, Junan Chen, Josephine Monica, Xiangyu Chen, Katie Luo, Yan Wang, Marc Emond, Wei-Lun Chao, Bharath Hariharan, Kilian Q. Weinberger, and Mark Campbell. "Ithaca365: Dataset and Driving Perception under Repeated and Challenging Weather Conditions." CVPR, 2022.
- [C39] Josephine Monica, Wei-Lun Chao, and Mark Campbell. "Sequential Joint Shape and Pose Estimation of Vehicles with Application to Automatic Amodal Segmentation Labeling." ICRA, 2022.
- [C38] Yurong You, Carlos Diaz-Ruiz, Yan Wang, Wei-Lun Chao, Bharath Hariharan, Mark Campbell, and Kilian Q. Weinberger. "Exploiting Playbacks in Unsupervised Domain Adaptation for 3D Object Detection in Self-Driving Cars." ICRA, 2022.
- [C37] Yurong You, Katie Z Luo, Xiangyu Chen, Junan Chen, Wei-Lun Chao, Wen Sun, Bharath Hariharan, Mark Campbell, and Kilian Q. Weinberger. "Hindsight is 20/20: Leveraging Past Traversals to Aid 3D Perception." ICLR, 2022.
- [C36] Hong-You Chen and Wei-Lun Chao. "On Bridging Generic and Personalized Federated Learning for Image Classification." ICLR, 2022.
- [C35] Han-Jia Ye and Wei-Lun Chao. "How to Train Your MAML to Excel in Few-Shot Classification." ICLR, 2022.
- [C34] Hong-You Chen and Wei-Lun Chao. "Gradual Domain Adaptation without Indexed Intermediate Domains." NeurIPS, 2021.
- [C33] Tai-Yu Pan, Cheng Zhang, Yandong Li, Hexiang Hu, Dong Xuan, Soravit Changpinyo, Boqing Gong, and Wei-Lun Chao. "On Model Calibration for Long-Tailed Object Detection and Instance Segmentation." NeurIPS, 2021.
- [C32] Jihyung Kil, Cheng Zhang, Dong Xuan and Wei-Lun Chao. "Discovering the Unknown Knowns: Turning Implicit Knowledge in the Dataset into Explicit Training Examples for Visual Question Answering." EMNLP, 2021.

- [C31] Han-Jia Ye, De-Chuan Zhan, and Wei-Lun Chao. "Procrustean Training for Imbalanced Deep Learning." ICCV, 2021.
- [C30] Cheng Zhang, Tai-Yu Pan, Yandong Li, Hexiang Hu, Dong Xuan, Soravit Changpinyo, Boqing Gong, and Wei-Lun Chao. "MosaicOS: A Simple and Effective Use of Object-Centric Images for Long-Tailed Object Detection." ICCV, 2021.
- [C29] Luyu Yang, Yan Wang, Mingfei Gao, Abhinav Shrivastava, Kilian Q. Weinberger, Wei-Lun Chao, and Ser-Nam Lim. "Deep Co-Training with Task Decomposition for Semi-Supervised Domain Adaptation." ICCV, 2021.
- [C28] Jihyung Kil and Wei-Lun Chao. "Revisiting Document Representations for Large-Scale Zero-Shot Learning." NAACL 2021.
- [C27] Hong-You Chen and Wei-Lun Chao. "FedBE: Making Bayesian Model Ensemble Applicable to Federated Learning." ICLR, 2021. (A preliminary version of this paper won the best student paper in SpicyFL 2020: NeurIPS Workshop on Scalability, Privacy, and Security in Federated Learning).
- [C26] Garg, Divyansh, Yan Wang, Bharath Hariharan, Mark Campbell, Kilian Q. Weinberger, and Wei-Lun Chao. "Wasserstein Distances for Stereo Disparity Estimation." NeurIPS, 2020 (Spotlight).
- [C25] Yan Wang*, Xiangyu Chen*, Yurong You*, Li Erran Li, Bharath Hariharan, Mark Campbell, Kilian Q. Weinberger, and Wei-Lun Chao. "Train in Germany, Test in the USA: Making 3D Object Detectors Generalize." CVPR, 2020.
- [C24] Rui Qian*, Divyansh Garg*, Yan Wang, Yurong You, Serge Belongie, Bharath Hariharan, Mark Campbell, Kilian Q. Weinberger, and Wei-Lun Chao. "End-to-end Pseudo-LiDAR for Image-Based 3D Object Detection." CVPR, 2020.
- [C23] Yurong You*, Yan Wang*, Wei-Lun Chao*, Divyansh Garg, Geoff Pleiss, Bharath Hariharan, Mark Campbell, and Kilian Q. Weinberger. "Pseudo-LiDAR++: Accurate Depth for 3D Object Detection in Autonomous Driving." ICLR, 2020.
- [C22] Shih-Han Chou, Wei-Lun Chao, Wei-Sheng Lai, Min Sun, and Ming-Hsuan Yang. "Visual Question Answering on 360 Images." WACV, 2020.
- [C21] Shengyuan Hu, Tao Yu, Chuan Guo, Wei-Lun Chao, and Kilian Q. Weinberger. "A New Defense Against Adversarial Images: Turning a Weakness into a Strength." NeurIPS, 2019.
- [C20] Cheng Zhang, Wei-Lun Chao, and Dong Xuan. "An Empirical Study on Leveraging Scene Graphs for Visual Question Answering." BMVC, 2019.
- [C19] Vikram Shree, Wei-Lun Chao, and Mark Campbell. "An Empirical Study of Person Re-Identification with Attributes." RO-MAN, 2019.
- [C18] Carlos Diaz-Ruiz, Yan Wang, Wei-Lun Chao, Kilian Q. Weinberger, and Mark Campbell. "Vision-Only 3D Tracking for Self-Driving Cars." CASE, 2019.
- [C17] Yan Wang, Wei-Lun Chao, Divyansh Garg, Bharath Hariharan, Mark Campbell, and Kilian Q. Weinberger. "Pseudo-LiDAR from visual depth estimation: bridging the gap in 3D object detection for autonomous driving." CVPR, 2019.
- [C16] Wei-Lun Chao*, Hexiang Hu*, and Fei Sha. "Cross-dataset adaptation for visual question answering." CVPR, 2018.
- [C15] Hexiang Hu*, Wei-Lun Chao*, and Fei Sha. "Learning answer embeddings for visual question answering." CVPR, 2018.

- [C14] Wei-Lun Chao*, Hexiang Hu*, and Fei Sha. "Being negative but constructively: lessons learnt from creating better visual question answering datasets." NAACL, 2018 (Oral presentation).
- [C13] Soravit Changpinyo, Wei-Lun Chao, and Fei Sha. "Predicting visual exemplars of unseen classes for zero-shot learning." ICCV, 2017.
- [C12] Wei-Lun Chao*, Soravit Changpinyo*, Boqing Gong, and Fei Sha. "An empirical study and analysis of generalized zero-shot learning for object recognition in the wild." ECCV, 2016 (Spotlight).
- [C11] Ke Zhang*, Wei-Lun Chao*, Fei Sha, and Kristen Grauman. "Video summarization with long short-term memory." ECCV, 2016.
- [C10] Soravit Changpinyo*, Wei-Lun Chao*, Boqing Gong, and Fei Sha. "Synthesized classifiers for zero-shot learning." CVPR, 2016 (Oral presentation).
- [C9] Ke Zhang*, Wei-Lun Chao*, Fei Sha, and Kristen Grauman. "Summary transfer: exemplar-based subset selection for video summarization." CVPR, 2016.
- [C8] Wei-Lun Chao*, Boqing Gong*, Kristen Grauman, and Fei Sha. "Large-margin determinantal point processes." UAI, 2015.
- [C7] Wei-Lun Chao, Justin Solomon, Dominik Michels, and Fei Sha. "Exponential Integration for Hamiltonian Monte Carlo." ICML, 2015 (Oral presentation).
- [C6] Boqing Gong*, Wei-Lun Chao*, Kristen Grauman, and Fei Sha. "Diverse sequential subset selection for supervised video summarization." NIPS, 2014.
- [C5] Wei-Lun Chao, Jun-Zuo Liu, Jian-Jiun Ding, and Po-Hung Wu. "Facial expression recognition using expression-specific local binary patterns and layer denoising mechanism." ICICS, 2013.
- [C4] Wei-Lun Chao, Jun-Zuo Liu, and Jian-Jiun Ding. "Facial age estimation based on label-sensitive learning and age-specific local regression." ICASSP, 2012 (Oral presentation).
- [C3] Jian-Jiun Ding, Yu-Hsiang Wang, Lee-Lin Hu, Wei-Lun Chao, and Yio-Wha Shau. "Muscle injury determination by image segmentation." VCIP, 2011 (Oral presentation).
- [C2] Wei-Lun Chao, Hsiao-Hang Su, Shao-Yi Chien, Winston Hsu, and Jian-Jiun Ding. "Coarse-to-fine temporal optimization for video retargeting based on seam carving." ICME, 2011 (Oral presentation).
- [C1] Jian-Jiun Ding, Wei-Lun Chao, Jiun-De Huang, and Cheng-Jin Kuo. "Asymmetric Fourier descriptor of non-closed segments." ICIP, 2010 (Oral presentation).

Workshops

- [W1] Ziwei Li, Hong-You Chen, Han-Wei Shen, and Wei-Lun Chao. "Understanding Federated Learning through Loss Landscape Visualizations: A Pilot Study. " NeurIPS Workshop on Federated Learning: Recent Advances and New Challenges, 2022.

Abstracts

- [A1] Somashekar G. Krishna, Wei-Lun Chao, Sarah Poland, Victoria Alexander, Tassiana Maloof, Kelly Dubay, Olivia Ueltschi, Dana M. Middendorf, Muhammed O. Jajeh, Aadit Vishwanath, Kyle Porter, David Carlyn, Tai-Yu Pan, Georgios Papachristou, Phil A. Hart, Zobeida Cruz-Monserrate, Darwin L. Conwell. "Computer-Aided Detection of

Advanced Neoplasia in Intraductal Papillary Mucinous Neoplasms Using Confocal Laser Endomicroscopy." Digestive Disease Week (DDW) – lecture presentation, 2020.

[A2] Somashekar G. Krishna, Wei-Lun Chao, Sebastian G. Strobel, Peter Stanich, Anand Patel, Anjali Luthra, Megan Q. Chan, Alecia Blaszcak, Dana Lee, Kyle Porter, Phil A. Hart, Zobeida Cruz-Monserrate, Darwin L. Conwell. "Application Of Machine Learning and Artificial Intelligence in the Detection of Dysplasia in IPMNs Using EUS-guided Needle-Based Confocal Laser Endomicroscopy." Digestive Disease Week (DDW), 2019.

TEACHING

- OSU CSE 5523: Machine learning and statistical pattern recognition (2023 Spring, 2022 Fall, 2021 Spring)
- OSU CSE 3521: Introduction to Artificial Intelligence (2021 Fall, 2020 Fall)
- OSU CSE 5539: Advanced topics in machine learning and computer vision (2023 Fall, 2020 Spring), Machine Learning and Computer Vision for Perception in Autonomous Driving (2022 Spring)

PHD, MS, OR UNDERGRAD THESIS, CANDIDACY EXAM COMMITTEES

PhD candidacy exam committee (excluding own students)

- Mohammad Samavatian, Yuzhou Jiang, Shi Zong, Prashant Serai, Hao Zhang, Ashutosh Pandey, Anupama Nandi, Wuwei Lan, Zhen Wang, Sangeeta Srivastava, Zichen Zhang, Heming Wang, Xiang Deng, Md Abdullah Al Maruf (Virginia Tech), and Haibo Yang, Debao Huang, Yixuan Zhang, Shuaichen Chang, Saikat Majumdar, Neng Shi, Changchang Yin

PhD dissertation committee (excluding own students)

- Sobhan Moosavi (11/16/2019), Peidong Wang (4/14/2021), Chaoyue Liu (4/26/2021), Anupama Nandi (12/7/2021), Hao Zhang (4/12/2022), Sangeeta Srivastava (4/20/2022), Mohammad Samavatian (5/2/2022), Zhen Wang (11/22/2022), Haibo Yang (4/26/2023), Xiang Deng (7/7/2023)

MS or Undergrad thesis committee (excluding own students)

- Joseph Chiu (4/23/2020), Jason Yao (4/30/2020), Jamie Cunningham (11/24/2020), Andrew Schellenberg (4/5/2021), Octavian Donca (11/22/2022), Divyanshu Tak (11/23/2022), Sounak Dey (4/3/2023), Reshma Ramesh Babu (4/14/2023)

POSTDOC, GRADUATE, MS, OR UNDERGRAD STUDENT SUPERVISION

Postdoc under supervision:

- Dipanjyoti Paul (co-mentored with Yu Su and Tanya Berger-Wolf)

PhD students under supervision:

- Jinsu Yoo estimated completion: 2028
- Ping Zhang estimated completion: 2028
- Arpita Chowdhury estimated completion: 2027
- Zheda Mai estimated completion: 2027

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- Lisa Wu estimated completion: 2027 (co-advised with Yu Su)
 - Cheng-Hao Tu estimated completion: 2026
 - David Carlyn estimated completion: 2025
 - Ziwei Li estimated completion: 2025 (co-advised with Han-Wei Shen)
 - Tai-Yu Pan estimated completion: 2024
 - Jihyung Kil estimated completion: 2024
 - Hong-You Chen estimated completion: 2023
 - Cheng Zhang **graduated:** 2022 (co-advised with Dong Xuan)

MS students under supervision:

- Reza Averly **graduated:** 2023
- Rodney Gracian Dsouza **graduated:** 2021 (co-advised with Irem Eryilmaz)

UG students under supervision:

- Ana Xiong
- Tlianle Chen
- Jike Zhong **graduated:** 2023

Other students (individual studies, research projects):

- Wenjin Fu 2021 Fall – 2022 Spring
- Chaeun Hong 2022 Spring
- Davis Sow 2021 Spring
- Michael Radey 2020 Spring

OSU Buckeye AutoDrive Team (perception team):

- Around 15 MS/UG students from OSU CSE, ECE, and MAE departments 2021 Fall - Present

FUNDING

- **ONR:** STTR: 3D Multimodal Imaging with LiDAR-like Engineered Sensor (3D-MILES). Phase 2. Total: \$373,498 (OSU side). Chao (co-PI) (2023-2025)
- **NIH:** R01: Endoscopic Ultrasound-guided In Vivo Confocal Laser Endomicroscopy as an Imaging Biomarker for the Accurate Risk Stratification of Intraductal Papillary Mucinous Neoplasms. Total: \$2,180,358. Chao (co-I) (2023-2028)
- **NSF: National Artificial Intelligence (AI) Research Institutes:** ICICLE: Intelligent Cyberinfrastructure with Computational Learning in the Environment. Total: \$19,999,998. Chao (senior personnel) (2021-2026)
- **NSF: HDR Institute:** Imageomics: A New Frontier of Biological Information Powered by Knowledge-Guided Machine Learning. Total: \$ 14,969,077. Chao (senior personnel) (2021-2026)
- **NSF:** Collaborative Research: RI: Medium: Robust Perception through End-User Adaptation. Shared portion: \$310,000. Chao (site-PI) (2021-2025)

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- **CISCO:** Large-Scale and Practical Federated Learning for Computer Vision Applications. Total: \$199,815. Chao (single PI) (2022-2024)
 - **ONR:** STTR: 3D Multimodal Imaging with LiDAR-like Engineered Sensor (3D-MILES). Phase 1 and Phase 1 option. Total: \$ 89,921 (OSU side). Chao (co-PI) (2022-2023)
 - **NSF: MRI:** RADiCAL: Reconfigurable Major Research Cyberinfrastructure for Advanced Computational Data Analytics and Machine Learning. Total: \$ 770,000. Chao (senior personnel) (2020-2023)
 - **AWS cloud credits for research,** \$25,000 AWS credits. Chao (PI) (2022-2023)
 - **OSU DoIM Pilot Grant.** Total: \$40,000. Chao (co-PI) (2022-2023)
 - **OSU CCTS:** Computer-Aided Detection of Advanced Neoplasia in Intraductal Papillary Mucinous Neoplasms Using Confocal Laser Endomicroscopy. Total: \$40,000. Chao (co-PI) (2020-2022)
 - **OSU TDAI:** Proof-of-concept: Active and low-cost hyperspectral imaging and analysis for subsurface sensing. Total: \$10,000. Chao (co-PI) (2021-2022)
 - **ACG Institute Research Grants and Awards:** A Cloud-hosted Artificial Intelligence Algorithm for the Automated Detection of Polyps During Colonoscopy: A Pilot Study. Total: \$10,000. Chao (co-PI) (2020-2021)
 - **OSU GI Development funds:** Development of a Computer Based (Artificial Intelligence) Algorithm to Predict High Grade Dysplasia/Early Cancer in Pre-Cancerous Pancreatic Cystic Lesions. Total \$25,000. Chao (co-PI) (2019-2021)
 - **AWS cloud credits for research,** \$20,000 AWS credits. Chao (PI) (2019-2020)

AWARDS AND HONORS

- OSU Lumley Research Award, 2023
- Best student paper in SpicyFL 2020: NeurIPS Workshop on Scalability, Privacy, and Security in Federated Learning
- Best poster presentation in OSU CSE Annual Student Research Poster Exhibition: Hong-You Chen (2021), Cheng Zhang (2020)
- Outstanding reviewers, CVPR 2021
- Outstanding reviewers, ICLR 2021
- Top reviewers, ICML 2020
- Top/best reviewers, NeurIPS 2018 & 2019
- CVPR 2018 Doctoral Consortium
- USC Annenberg Graduate Fellowship (Aug. 2013 – Jul. 2017)
- Studying Abroad Scholarship, Ministry of Education, Taiwan (2013 – 2015)
- Avg. MS Grade: Rank 1 in the Grad. Inst. Communication Engineering, NTU (1/122)
- Honor Student Member of the Phi Tau Phi Scholastic Honor Society of the Republic of China, 2011
- Graduate Student Scholarship, NTU, 2010 – 2011
- Long-Term Scholarship for Talented Students, Hsing Tian Kong Culture and Education Development Foundation, 2010 – 2017
- Avg. BS Grade: Rank 3 in the Dept. Communication Engineering, NCTU (3/90; 2/43 in the class)

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- President's Award, NCTU (3 times)
 - Exchange Student Scholarship to UIUC, 2009
 - Other Scholarships for outstanding academic performance: from Dung Guang Education Foundation, 2010; Chin-Chih, 2008; Datatronics Technology, Inc., 2007

PROFESSIONAL EXPERIENCE

OSU service and certificates:

- Co-organizer, OSU CSE Foundational AI seminar (2022)
- Advisor, Buckeye AutoDrive Team (2021-present)
- Advisor, OSU AI Club (2020-present)
- Inclusive Excellence Certificate, Level 1 (2021)
- Co-organizer, exploreCSR (2021-2022)
- Host of the CSE Prospective graduate student virtual visit (2021)
- Course development: redesigning CSE 3521 Undergrad Artificial Intelligence Course (2020-2021)
- Course coordinator: CSE 3521 Undergrad Artificial Intelligence Course (2021-present)
- Member of CSE admission committee (2019-2021, 2023-2024), space committee (2023-2024), curriculum committee (2020-2022), ML/Robotics faculty search subcommittee (2021-2022), faculty search committee (2022-2023)

Conference/Workshop Services:

- Conference Area Chair: ICML (2021-2023), NeurIPS (2022-2023)
- Workshop Organizer: 2020 ICML Workshop on AI for Autonomous Driving
- Workshop Organizer: 2020 ECCV Workshop on Perception for Autonomous Driving
- Workshop Organizer: 2019 ICML Workshop on AI for Autonomous Driving
- Mentor: 2019 and 2022 NeurIPS NewInML Workshop

Reviewer:

- Journal Reviewers: Transactions on Machine Learning Research (TMLR); **IEEE Transactions:** on Pattern Analysis and Machine Intelligence, on Image Processing, on Multimedia, on Cybernetics, on Information Forensics & Security, on Circuits and Systems for Video Technology, and IEEE Computational Intelligence Magazine; **Elsevier:** Pattern Recognition, Expert Systems with Applications; **Springer:** International Journal of Computer Vision, Machine Vision and Applications
- Conference (Meta) Reviewers: NeurIPS (2018-2022), ICML (2019-2022), ICLR (2019-2022), CVPR (2018-2022), EMNLP (2020), NAACL (2019), WACV 2019, ACCV 2018, AAAI (2020), IROS (2019), AAMAS (2020)
- Workshop: 2019 and 2021 NeurIPS NewInML Workshop

Teaching Assistant

- Machine Learning (CSCI 567), USC, Fall 2017 and Spring 2018
- Signals and Systems, NTU, Spring 2011

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- Time Frequency Analysis and Wavelet Transforms, NTU, Fall 2010

Research Assistant

- From Summer 2014 to Summer 2018 at USC (for some of the semesters)

Invited Talk and Lectures

- Interesting Research Problems in Federated Learning, at OSU TDAI, 2023
- Learning to Perceive with Imperfect Data, at ImageXD, 2023
- Deep Learning for Computer Vision, at OSU TDAI summer school, 2022
- On the power of observations and analyses in deep learning, at *Google and Amazon* and *NYCU*, 2021
- Pseudo-LiDAR for Image-based 3D Object Detection in Autonomous Driving, at *OSU (ACM-W, AI Club, AI seminar, faculty in focus)*, 2019 – 2020
- Transfer Learning towards Intelligent Systems in the Wild, at *OSU, ASU, TTIC, UofA, Cornell, USC, NVIDIA, and FAIR*, 2018
- Zero-shot Learning for Visual Recognition, at *NTHU, Academia Sinica, USC, Cornell, and Google*, 2017 – 2018
- What, Where, and How to Share for Computer Vision and Machine Learning, *NCTU*, 2017
- Video Summarization and Hamiltonian Monte Carlo, in *MiRA group, NTU*, 2015
- Dimensionality Reduction and Manifold Learning, in the *Advance Multimedia Analysis and Indexing course instructed by Prof. Winston Hsu, NTU*, 2011 – 2012 (totally 4 weeks)
- Experience and Preparation for Studying Abroad, in the *Career Planning course, NCTU*, 2014 – 2016