Jong-Chyi Su

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Work Experience

Google, Software Engineer — Jun 2024 - Present
Computational photography for Pixel camera in Pixel HDR+ team
– Transform cutting-edge computational photography research into shippable Pixel Camera features, overseeing ML model training, tuning, and efficient on-device deployment.
– Leverage Generative AI to enhance HDR+ image quality while maintaining system health and pipeline efficiency.

NEC Laboratories America, Researcher — Jan 2023 - Jun 2024
Controllable data simulation using diffusion models and 3D reconstruction methods for autonomous driving
– Proposed novel methods for generating videos for autonomous driving conditioned on scene descriptions and BEV maps.
– Combined diffusion models and 3D reconstruction to generate controllable 3D scenes with editable moving objects.
Automatic data engine for autonomous driving using VLM/LLM
– Created low-cost data systems that automatically identify issues, query/generate data, improve the model by self-training, and leverage VLM/LLM for verification, for autonomous driving stacks in 2D/3D perception, prediction, and planning.
– Lowered 10x labeling and training cost by replacing human curation with VLM/LLM on 2D object detection.

Meta AI, Research Scientist — Jul 2021 - Nov 2022
AI Commerce – Worked on visual search for products, including object detection, classification, and retrieval.
– Improved classification and retrieval accuracy by 5% using hierarchical predictions in the label space with 10k categories.
AI Research for Monetization – Increased the revenue with ads ranking models using content understanding features.

Computer Vision Lab at UMass Amherst, Research Assistant — Sep 2015 - Jun 2021
– Published papers on transfer/semi-/self-supervised/few-shot learning, domain adaptation, and vision and language.
– Worked intensively on fine-grained object recognition, created benchmarks and sota methods on semi-supervised learning.

Meta AI, Research Intern — Jun 2020 - Aug 2020
AI commerce – Developed generative models for generating catalog images of clothing items using organic images.

NEC Laboratories America, Summer Research Assistant — Jun 2018 - Aug 2018
– Proposed novel methods of active learning for domain adaptation on object classification, detection, and segmentation.

Amazon Web Services, Applied Scientist Intern — Jun 2017 - Aug 2017
– Worked on an alternative solution of generative models using GANs and nearest neighbor search in the deep learning team.

Education

Ph.D., Computer Science, University of Massachusetts Amherst — Sep 2015 - Jun 2021
M.S., Computer Science, University of California San Diego — Sep 2013 - Jun 2015
B.S., Electrical Engineering, National Taiwan University — Sep 2008 - Jun 2012

Research experiences: computer vision, machine learning, generative models, data engine, ML ops, object recognition/detection, self-/semi-supervised/few-shot/transfer learning, vision and language, representation learning.
Programming Languages and Libraries: Python/C++, PyTorch/JAX/TensorFlow, NumPy/OpenCV

Professional activities

Organizer: FGVC{7,8,9,10,11} workshop at CVPR {2020, 2021, 2022, 2023, 2024}
Area Chair: WACV 2024, 2025
Conference Reviewer: CVPR, ICCV, ECCV, NeurIPS, ACCV, and WACV, since 2018
Journal Reviewer: PAMI, IJCV, IROS, ICRA, and TOMM
Graduate Student Representative, UMass Amherst CICS 2020-2021

Awards

Doctoral Consortium, CVPR 2021
Outstanding Reviewer: CVPR 2018
Outstanding TA Award, UMass Amherst CICS, 2021

Publications

1. **AutoScape: Geometry-Consistent Long-Horizon Scene Generation**
   Jiacheng Chen, Ziyu Jiang, Mingfu Liang, Bingbing Zhuang, **Jong-Chyi Su**, Sparsh Garg, Ying Wu, Manmohan Chandraker
   International Conference on Computer Vision (ICCV), 2025.

2. **AIDE: An Automatic Data Engine for Object Detection in Autonomous Driving**
   Mingfu Liang, **Jong-Chyi Su**, Samuel Schulter, Sparsh Garg, Shiyu Zhao, Ying Wu, Manmohan Chandraker
   IEEE Conference on Computer Vision and Pattern Recognition (CVPR), 2024.

3. **Tell Me What Happened: Unifying Text-guided Video Completion via Multimodal Masked Video Generation**
   Tsu-Jui Fu, Licheng Yu, Ning Zhang, Cheng-Yang Fu, **Jong-Chyi Su**, William Yang Wang, Sean Bell
   IEEE Conference on Computer Vision and Pattern Recognition (CVPR), 2023.

4. **RoPAWS: Robust Semi-supervised Representation Learning from Uncurated Data**
   Sangwoo Mo, **Jong-Chyi Su**, Kevin Chih-Yao Ma, Mido Assran, Ishan Misra, Licheng Yu, Sean Bell
   International Conference on Learning Representations (ICLR), 2023.

5. **Semi-Supervised Learning with Taxonomic Labels**
   Jong-Chyi Su, Subhransu Maji
   British Machine Vision Conference (BMVC), 2021.

6. **The Semi-Supervised iNaturalist Challenge at the FGVC8 Workshop**
   Jong-Chyi Su, Subhransu Maji
   The eighth Workshop on Fine-Grained Visual Categorization (FGVC8) at CVPR, 2021.

7. **On Equivariant and Invariant Learning of Object Landmark Representations**
   Zezhou Cheng, **Jong-Chyi Su**, Subhransu Maji
   International Conference on Computer Vision (ICCV), 2021.

8. **A Realistic Evaluation of Semi-Supervised Learning for Fine-Grained Classification**
   Jong-Chyi Su, Zezhou Cheng, Subhransu Maji
   IEEE Conference on Computer Vision and Pattern Recognition (CVPR) **(oral)**, 2021.

9. **When Does Self-supervision Improve Few-shot Learning?**
   Jong-Chyi Su, Subhransu Maji, Bharath Hariharan
   European Conference on Computer Vision (ECCV), 2020.

10. **The Semi-Supervised iNaturalist-Aves Challenge at FGVC7 Workshop**
    Jong-Chyi Su, Subhransu Maji
    The seventh Workshop on Fine-Grained Visual Categorization (FGVC7) at CVPR, 2020.

11. **Active Adversarial Domain Adaptation**
    Jong-Chyi Su, Yi-Hsuan Tsai, Kihyuk Sohn, Buyu Liu, Subhransu Maji, Manmohan Chandraker
    Winter Conference on Applications of Computer Vision (WACV), 2020.

12. **A Deeper Look at 3D Shape Classifiers**
    Jong-Chyi Su, Matheus Gadelha, Rui Wang, Subhransu Maji
    Second Workshop on 3D Reconstruction Meets Semantics at ECCV, 2018.

13. **Reasoning about Fine-grained Attribute Phrases using Reference Games**
    Jong-Chyi Su*, Chenyun Wu*, Huaizu Jiang, Subhransu Maji
    International Conference on Computer Vision (ICCV), 2017.

14. **Adapting Models to Signal Degradation using Distillation**
    Jong-Chyi Su, Subhransu Maji
    British Machine Vision Conference (BMVC), 2017.

15. **Depth Estimation and Specular Removal for Glossy Surfaces Using Point and Line Consistency with Light-Field Cameras**
    Michael Tao, **Jong-Chyi Su**, Ting-Chun Wang, Jitendra Malik, and Ravi Ramamoorthi
    IEEE Transactions on Pattern Analysis and Machine Intelligence (PAMI), Volume 38 Issue 6, June 2016.

Teaching Experience

Teaching Assistant

- UMass Amherst COMPSCI 682, Neural Networks: A Modern Introduction — Spring 2018, Fall 2018, Fall 2020
- UMass Amherst COMPSCI 370, Introduction to Computer Vision — Spring 2021
- UCSD CSE 250B, Machine Learning — Winter 2015
- UCSD CSE 150, Introduction to Artificial Intelligence — Summer 2014