Dequan Wang

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Research Interests

Generative AI for Healthcare and Life Sciences

Education

Ph.D. in Computer Science — *Aug, 2016 – Dec, 2022*
GPA: 4.0/4.0, Advisor: Trevor Darrell — University of California, Berkeley

B.S. in Computer Science — *Sept, 2012 – Jun, 2016*
GPA: 3.7/4.0, Rank: 2/111 — Fudan University

Positions

Assistant Professor — *Jan, 2023 – Present*
Qing Yuan Research — Shanghai Jiao Tong University

Research Scientist — *Jan, 2023 – Present*
Smart Health Group — Shanghai AI Laboratory

Journal Articles

MedFMC: A Real-world Dataset and Benchmark for Foundation Model Adaptation in Medical Image Classification
1 Dequan Wang*, Xiaosong Wang*, Lilong Wang, Mengzhang Li, Qian Da, Xiaoqiang Liu, Xiangyu Gao, Jun Shen, Junjun He, Tian Shen, Qi Duan, Jie Zhao, Kang Li, Yu Qiao, Shaoting Zhang
Scientific Data, 2023

Conference Proceedings

BayesDiff: Estimating Pixel-wise Uncertainty in Diffusion via Bayesian Inference
17 Siqi Kou, Lei Gan, Dequan Wang, Chongxuan Li, Zhijie Deng
International Conference on Learning Representations (ICLR), 2024

An Extensible Framework for Open Heterogeneous Collaborative Perception
16 Yifan Lu, Yue Hu, Yiqi Zhong, Dequan Wang, Siheng Chen, Yanfeng Wang
International Conference on Learning Representations (ICLR), 2024

Text-guided Foundation Model Adaptation for Pathological Image Classification
15 Yunkun Zhang, Jin Gao, Mu Zhou, Xiaosong Wang, Yu Qiao, Shaoting Zhang, Dequan Wang
Medical Image Computing and Computer-Assisted Intervention (MICCAI), 2023

Back to the Source: Diffusion-Driven Adaptation to Test-Time Corruption
14 Jin Gao*, Jialing Zhang*, Xihui Liu, Trevor Darrell, Evan Shelhamer†, Dequan Wang†
IEEE Conference on Computer Vision and Pattern Recognition (CVPR), 2023

GACT: Activation Compressed Training for Generic Network Architectures
13 Xiaoxuan Liu, Lianmin Zheng, Dequan Wang, Yukuo Cen, Weize Chen, Xu Han, Jianfei Chen, Zhiyuan Liu, Jie Tang, Joseph Gonzalez, Michael Mahoney, Alvin Cheung
International Conference on Machine Learning (ICML), 2022 **(Spotlight)**

Contrastive Test-time Adaptation
12 Dian Chen, Dequan Wang, Trevor Darrell, Sayna Ebrahimi
IEEE Conference on Computer Vision and Pattern Recognition (CVPR), 2022

ActNN: Reducing Training Memory Footprint via 2-Bit Activation Compressed Training
11 Jianfei Chen*, Lianmin Zheng*, Zhewei Yao, Dequan Wang, Ion Stoica, Michael Mahoney, Joseph Gonzalez
International Conference on Machine Learning (ICML), 2021 **(Oral)**

Tent: Fully Test-time Adaptation by Entropy Minimization
10 Dequan Wang*, Evan Shelhamer*, Shaoteng Liu, Bruno Olshausen, Trevor Darrell
International Conference on Learning Representations (ICLR), 2021 **(Spotlight)**

CoDeNet: Algorithm-hardware Co-design for Deformable Convolution
9 Qijing Huang*, Dequan Wang*, Zhen Dong*, Yizhao Gao, Yaohui Cai, Bichen Wu, Kurt Keutzer, John Wawrzynek
ACM/SIGDA International Symposium on Field-Programmable Gate Arrays (FPGA), 2021

Joint Monocular 3D Vehicle Detection and Tracking
8 Hou-Ning Hu, Qi-Zhi Cai, Dequan Wang, Ji Lin, Min Sun, Philipp Krähenbühl, Trevor Darrell, Fisher Yu
IEEE International Conference on Computer Vision (ICCV), 2019

Monocular Plan View Networks for Autonomous Driving
7 Dequan Wang, Coline Devin, Qi-Zhi Cai, Philipp Krähenbühl, Trevor Darrell
IEEE International Conference on Intelligent Robots and Systems (IROS), 2019

Deep Object Centric Policies for Autonomous Driving
6 Dequan Wang, Coline Devin, Qi-Zhi Cai, Fisher Yu, Trevor Darrell
IEEE International Conference on Robotics and Automation (ICRA), 2019

Convolutional Neural Networks on Non-uniform Geometrical Signals Using Euclidean Spectral Transformation
5 Chiyu Jiang, Dequan Wang, Jingwei Huang, Philip Marcus, Matthias Niessner
International Conference on Learning Representations (ICLR), 2019

Deep Layer Aggregation
4 Fisher Yu, Dequan Wang, Evan Shelhamer, Trevor Darrell
IEEE Conference on Computer Vision and Pattern Recognition (CVPR), 2018 **(Oral)**

Iterative Object and Part Transfer for Fine-Grained Recognition
3 Zhiqiang Shen, Yu-Gang Jiang, Dequan Wang, Xiangyang Xue
IEEE International Conference on Multimedia and Expo (ICME), 2017

Multiple Granularity Descriptors for Fine-grained Categorization
2 Dequan Wang, Zhiqiang Shen, Jie Shao, Wei Zhang, Xiangyang Xue, Zheng Zhang
IEEE International Conference on Computer Vision (ICCV), 2015

Weakly Supervised Semantic Segmentation for Social Images
1 Wei Zhang, Sheng Zeng, Dequan Wang, Xiangyang Xue
IEEE Conference on Computer Vision and Pattern Recognition (CVPR), 2015

Technical Reports

OpenMEDLab: An Open-source Platform for Multi-modality Foundation Models in Medicine
Xiaosong Wang, Xiaofan Zhang, Guotai Wang, Junjun He, Zhongyu Li, Wentao Zhu, Yi Guo, Qi Dou, Xi-
13 aoxiao Li, Dequan Wang, Liang Hong, Qicheng Lao, Tong Ruan, Yukun Zhou, Yixue Li, Jie Zhao, Kang Li,
Xin Sun, Lifeng Zhu, Shaoting Zhang
arXiv:2402.18028

Data-Centric Foundation Models in Computational Healthcare: A Survey
12 Yunkun Zhang, Jin Gao, Zheling Tan, Lingfeng Zhou, Kexin Ding, Mu Zhou, Shaoting Zhang, Dequan Wang
arXiv:2401.02458

Towards General Purpose Medical AI: Continual Learning Medical Foundation Model
11 Huahui Yi, Ziyuan Qin, Qicheng Lao, Wei Xu, Zekun Jiang, Dequan Wang, Shaoting Zhang, Kang Li
arXiv:2303.06580

Decentralized Vehicle Coordination: The Berkeley DeepDrive Drone Dataset
10 Fangyu Wu, Dequan Wang, Minjune Hwang, Chenhui Hao, Jiawei Lu,
Jiamu Zhang, Christopher Chou, Trevor Darrell, Alexandre Bayen
arXiv:2209.08763

On-target Adaptation
9 Dequan Wang, Shaoteng Liu, Sayna Ebrahimi, Evan Shelhamer, Trevor Darrell
arXiv:2109.01087

8 **Fighting Gradients with Gradients: Dynamic Defenses against Adversarial Attacks**
Dequan Wang, An Ju, Evan Shelhamer, David Wagner, Trevor Darrell
arXiv:2105.08714

7 **BEV-Seg: Bird's Eye View Semantic Segmentation Using Geometry and Semantic Point Cloud**
Mong Ng, Kaahan Radia, Jianfei Chen, Dequan Wang, Ionel Gog, Joseph Gonzalez
arXiv:2006.11436

6 **Dynamic Scale Inference by Entropy Optimization**
Dequan Wang*, Evan Shelhamer*, Bruno Olshausen, Trevor Darrell
arXiv:1908.03182

5 **Blurring the Line Between Structure and Learning to Optimize and Adapt Receptive Fields**
Evan Shelhamer, Dequan Wang, Trevor Darrell
arXiv:1904.11487

4 **Objects as Points**
Xingyi Zhou, Dequan Wang, Philipp Krähenbühl
arXiv:1904.07850

3 **VisDA: The Visual Domain Adaptation Challenge**
Xingchao Peng, Ben Usman, Neela Kaushik, Judy Hoffman, Dequan Wang, Kate Saenko
arXiv:1710.06924

2 **FCNs in the Wild: Pixel-level Adversarial and Constraint-based Adaptation**
Judy Hoffman, Dequan Wang, Fisher Yu, Trevor Darrell
arXiv:1612.02649

1 **Learning to Point and Count**
Jie Shao, Dequan Wang, Xiangyang Xue, and Zheng Zhang
arXiv:1512.02326

Academic Services

Founding Organizer of Autonomous Driving Workshop	*CVPR 2017*
Founding Organizer of TASK-CV Domain Adaptation Workshop	*ICCV 2017*
Program Committee of Autonomous Driving Workshop	*CVPR 2018*
Program Committee of TASK-CV Domain Adaptation Workshop	*ECCV 2018*
Program Committee of TASK-CV Domain Adaptation Workshop	*ICCV 2019*
Program Committee of Machine Learning for Autonomous Driving Workshop	*NeurIPS 2019*
Program Committee of TASK-CV Domain Adaptation Workshop	*ECCV 2020*
Program Committee of Perception for Autonomous Driving Workshop	*ECCV 2020*
Program Committee of Machine Learning for Autonomous Driving Workshop	*NeurIPS 2020*
Program Committee of Artificial Intelligence for Autonomous Driving Workshop	*IJCAI 2021*
Program Committee of Autonomous Vehicle Vision Workshop	*ICCV 2021*
Program Committee of Multi-Agent Interaction and Relational Reasoning Workshop	*ICCV 2021*
Program Committee of Autonomous Vehicle Vision Workshop	*ECCV 2022*
Guest Editor of MIA Special Issue: Foundation Models for Medical Image Analysis	*MIA 2023*
Organizer of Foundation Model Prompting for Medical Image Classification Challenge	*NeurIPS 2023*
Founding Organizer of Test-Time Adaptation Workshop	*CVPR 2024*

Teaching Experience

Graduate Student Instructor of CS 188: Introduction to Artificial Intelligence	Spring 2019
Graduate Student Instructor of DS 100: Principles and Techniques of Data Science	Spring 2020
Graduate Student Mentor of BAIR Undergraduate Mentoring Program	2018, 2019, 2020
Instructor of CS 7353: Designing and Understanding Deep Neural Networks	Spring 2024
Instructor of ISE 3309: Practical Artificial Intelligence Programming	Fall 2024