Yixiao Ge

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EDUCATION

The Chinese University of Hong Kong, Multimedia Laboratory

- Ph.D. Candidate in Computer Vision and Deep Learning — Aug 2018 – Exp. Jul 2021
  - Advisors: Prof. Hongsheng Li and Prof. Xiaogang Wang
  - Focus: Unsupervised learning, domain adaptation, disentangled learning, image retrieval and image generation.

Huazhong University of Science and Technology, School of Automation

- B.Eng. in Measurement and Control Technology and Instrument — Sep 2013 – Jun 2017
  - Cumulative GPA: 3.81 / 4.00, Ranking: 2 / 48
  - Won National Scholarship, awarded as Pacemaker to Merit Student.

SELECTED PROJECTS

Domain Adaptive and Unsupervised Object Re-identification

- OpenUnReID Codebase — Jun 2020 – Jul 2020
  - Act as the main developer.
  - An open-source codebase for both domain adaptive and unsupervised object re-ID tasks.
  - Provide strong baselines and multiple state-of-the-art methods with highly refactored codes.
- Improved Mutual Mean-Teaching (ECCVW 2020) [5] — May 2020 – Jul 2020
  - Rank the 2nd place in the Visual Domain Adaptation Challenge.
  - Propose an improved version of our mutual mean-teaching framework.
  - Fully exploit both pseudo-label-based and domain translation-based methods.
- Self-paced Contrastive Learning (NeurIPS 2020) [1] — Feb 2020 – Jun 2020
  - Propose a self-paced contrastive learning framework with hybrid memory and unified contrastive loss.
  - Surpass state-of-the-art algorithms on unsupervised re-ID by considerable 16.7% mAP.
- Structured Domain Adaptation (In Submission) [6] — Aug 2019 – Nov 2019
  - Propose an online relation-consistency regularization to generate more informative training samples.
  - Fully explore the potential of domain translation-based methods, which have been ignored in recent years.
- Mutual Mean-Teaching (ICLR 2020) [3] — Jan 2019 – Sep 2019
  - The first work on object re-ID tasks in ICLR.
  - Propose to conduct online label refinement with soft labels produced by mean-teaching networks in a mutual manner.
  - Surpass state-of-the-art algorithms on domain adaptive re-ID by up to 18% mAP.

Image-based Localization, Place Recognition

- OpenIBL Codebase — Nov 2019 – Mar 2020
  - Act as the sole developer.
  - An open-source codebase for image-based localization and place recognition.
  - Provide PyTorch implementations for classic methods, e.g. NetVLAD (CVPR'16), etc.
- Self-supervising Fine-grained Region Similarities (ECCV 2020) [2] — Nov 2019 – Mar 2020
  - Spotlight presentation.
  - Propose to self-supervise image-to-region similarities by training in generations.
  - Surpass state-of-the-art algorithms by 5.7% in terms of Recall@1.

Disentangled Representation Learning in Person Re-identification

- FD-GAN (NeurIPS 2018) [4] — Feb 2018 – May 2018
  - The first work on person re-ID tasks in NeurIPS.
  - Propose to learn identity-related and pose-unrelated person features with a GAN-based framework.

PUBLICATIONS

TOP-TIER CONFERENCES

[1] Y. Ge, F. Zhu, D. Chen, R. Zhao, and H. Li, "Self-paced Contrastive Learning with Hybrid Memory for Domain Adaptive Object Re-ID," in *Advances in Neural Information Processing Systems (NeurIPS)*, 2020.

[2] Y. Ge, H. Wang, F. Zhu, R. Zhao, and H. Li, "Self-supervising Fine-grained Region Similarities for Large-scale Image Localization" (Spotlight Presentation), in *European Conference on Computer Vision (ECCV)*, 2020.

[3] Y. Ge, D. Chen, and H. Li, "Mutual Mean-Teaching: Pseudo Label Refinery for Unsupervised Domain Adaptation on Person Re-identification," in *International Conference on Learning Representations (ICLR)*, 2020.

[4] Y. Ge*, Z. Li*, H. Zhao, G. Yin, S. Yi, X. Wang, and H. Li, "FD-GAN: Pose-guided Feature Distilling GAN for Robust Person Re-identification," in *Advances in Neural Information Processing Systems (NeurIPS)*, 2018.

PREPRINTS

[5] Y. Ge, S. Yu, and D. Chen, "Improved Mutual Mean-Teaching for Unsupervised Domain Adaptive Re-ID," technique report for *Visual Domain Adaptation Challenge (VisDA)*, in conjunction with *European Conference on Computer Vision (ECCV)*, 2020.

[6] Y. Ge, F. Zhu, D. Chen, R. Zhao, X. Wang, and H. Li, "Structured Domain Adaptation with Online Relation Regularization for Unsupervised Person Re-ID," in submission, 2020.

[7] X. Zhang*, Y. Ge*, Y. Qiao, and H. Li, "Refining Pseudo Labels with Clustering Consensus over Generations for Unsupervised Object Re-identification," in submission, 2020.

[8] C. Zhao, Y. Ge, J. Yang, F. Zhu, R. Zhao, and H. Li, "Consensus-Guided Correspondence Denoising," in submission, 2020.

[9] R. Liu, Y. Ge, C. Choi, X. Wang, and H. Li, "DivCo: Diverse Conditional Image Synthesis via Contrastive Generative Adversarial Network," in submission, 2020.

AWARDS & SCHOLARSHIPS

- Future Star, SenseTime Group Limited. 2020
  Only one quota for interns in the business group of SCG-RD.
- Second Place, Visual Domain Adaptation Challenge 2020
  An international competition in conjunction with ECCV 2020.
- Postgraduate Scholarship, The Chinese University of Hong Kong 2018 – 2022
  For Ph.D. students within the normative period.
- First Prize, China Instrument and Control Society Scholarship 2016
  For top 6 students in the field of instrument and control nationwide.
- Pacemaker to Merit Student, Huazhong University of Science and Technology 2015
  For top 20 students school-wide.
- National Scholarship, Huazhong University of Science and Technology 2015
  For top 1% students school-wide.

PROFESSIONAL ACTIVITIES

Journal Reviewer

- International Journal of Computer Vision
- IEEE Transactions on Image Processing
- IEEE Transactions on Circuits and Systems for Video Technology
- IEEE Transactions on Multimedia
- Neurocomputing

Conference Reviewer

- IEEE Conference on Computer Vision and Pattern Recognition (CVPR) 2021
- International Conference on Learning Representations (ICLR) 2021
- Neural Information Processing Systems (NeurIPS) 2020

Invited Talks

- "Unsupervised and Domain Adaptive Object Re-identification" at Megvii (旷视) Dec 2020
- "Analysis and Development of OpenUnReID Codebase" at ZhiDX (智东西) Dec 2020
- "Un-/Semi-/Weakly-supervised Learning for Image and Object Retrieval" at Huawei (华为) Nov 2020
- "Unsupervised and Domain Adaptive Object Re-identification" at TechBeat (将门) Nov 2020
- Spotlight presentation at ECCV 2020 Aug 2020
- Oral presentation at VisDA Challenge 2020 (ECCVW) as one of the winners Aug 2020

WORK EXPERIENCE

Adobe Research

- Project Collaborator, Jul 2020 – Present
  - Collaborate with Dr. Ning Xu.
  - Work on image generation tasks.

SenseTime Research, Shenzhen & Hong Kong, China

- Research Intern, May 2019 – Jun 2020
  - Worked with Dr. Feng Zhu, Dr. Dapeng Chen and Dr. Rui Zhao.
  - Worked on large-scale image localization, domain adaptation and unsupervised learning.
- Research Intern, Feb 2018 – May 2018
  - Worked with Ding Liang.
  - Worked on face recognition and generative models.

Multimedia Laboratory, The Chinese University of Hong Kong, Shatin NT, Hong Kong

- Research Assistant, Sep 2017 – Jul 2018
  - Supervised by Prof. Hongsheng Li and Prof. Xiaogang Wang.
  - Worked on video object detection, and representation learning with generative models.
- Junior Research Assistant, Feb 2017 – May 2017
  - Supervised by Prof. Hongsheng Li and Prof. Xiaogang Wang.
  - Worked on breast cancer detection as the undergraduate final-year project.

TEACHING EXPERIENCE

The Chinese University of Hong Kong, Shatin NT, Hong Kong

- Teaching Assistant,
  - ENGG 2720: Complex Analysis 2020
  - ENGG 2420B: Complex Analysis and Differential Equations for Engineers 2019
  - ELEG 5491: Introduction to Deep Learning 2019
  - ENGG 2420A: Complex Analysis and Differential Equations for Engineers 2018