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研究方向: 联邦学习, 自监督学习, 普适计算

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学术著作

学术论文 (合作文章非挂名, 均有实际参与, 担任的角色有: 改写, 实验设置, 验证文本, 行文逻辑, 代码, 甚至是选题。乐于分享, 喜欢合作, 善于合作, 善于沟通):

1. **D. Cheng**, L. Zhang*, Can Bu, et al. ProtoHAR: Prototype Guided Personalized Federated Learning for Human Activity Recognition, **Accepted**. IEEE Journal of Biomedical and Health Informatics, 2023. (第一作者, 中科院一区, **IF: 7.7**)
2. **D. Cheng**, L. Zhang*, Can Bu, et al. Learning Hierarchical Time Series Data Augmentation Invariances via Contrastive Supervision for Human Activity Recognition, **Accepted**. Knowledge-Based Systems, 2023. (第一作者, 中科院一区, **IF: 8.8**)
3. **D. Cheng**, L. Zhang*, et al. MaskCAE: Masked Convolutional Autoencoder for Human Activity Recognition, under review, IEEE Journal of Biomedical and Health Informatics, 2023. (第一作者, 中科院一区, **IF: 7.7**)
4. J. Liang, L. Zhang*, D. Cheng, et al. An Automatic Network Structure Search via Channel Pruning for Accelerating Human Activity Inference on Mobile Devices, **Accepted**. Expert Systems With Applications, 2023. (中科院一区, **IF: 8.5**)
5. L. Qin, L. Zhang*, D. Cheng, et al. Towards Better Accuracy-Efficiency Trade-Offs: Dynamic Activity Inference via Mutual Learning from Various Width-Resolution Configurations, *under review*. IEEE Transactions on Mobile Computing, 2023. (**CCF A**, **IF: 7.9**)
6. J. Yu, L. Zhang*, Dongzhou Cheng, et al. Ensemble Early Exit Network on Human Activity Recognition Using Wearable Sensors, *under review*. Knowledge-Based Systems, 2023. (中科院一区, **IF: 8.8**)
7. J. Yu, L. Zhang*, Dongzhou Cheng, et al. RepMobile: A MobileNet-Like Network with Structural Re-Parameterization for Sensor-Based Human Activity Recognition, *under review*. Expert Systems With Applications, 2023. (中科院一区, **IF: 8.5**)
8. B. Can, L. Zhang*, D. Cheng, et al. Learn from Others and Be Yourself in Federated Human Activity Recognition via Attention-based Pairwise Collaborations, *reject and resubmit*. IEEE Transactions on Instrumentation & Measurement, 2023. (中科院二区, **IF: 5.6**)
9. S. Wang, L. Zhang*, D. Cheng, et al. Robust Human Activity Recognition via Wearable Sensors Using Dynamic Gaussian Kernel Learning, **Accepted**. IEEE Sensors Journal, 2023. (中科院二区, **IF: 4.3**)
10. M. Yao, L. Zhang*, D. Cheng, et al. An Effective Large Kernel Convolutional Neural Networks for Human Activity Recognition Using Wearables, *under review*. IEEE Sensors Journal, 2023. (中科院二区, **IF: 4.3**)
11. N. Ye, L. Zhang*, D. Cheng, et al. Instance-Aware Layers-bit-select Network on Human Activity Recognition Using Wearable Sensors. *under review*. Information Processing & Management, 2023. (中科院一区, **IF: 8.6**)
12. M. Yao, L. Zhang*, D. Cheng, et al. A Sparse Large Kernel Convolutional Neural Network for Human Activity Recognition Using Wearables *under review*. Applied soft Computing, 2023. (中科院二区, **IF: 8.7**)

经验经历

部分文章

2023.5 - 至今

- 复现了 FedAvg, SCAFFOLD, Lg-FedAvg, FedRep, FedProto 等算法。针对现如今个性化算法的不足, 把重点关注到全局表征的可分离性和动态微调上, 进而提出了 ProtoHAR 算法, 实现了性能上的大幅度提升, 并且具有一定的可解释性。
- 通过利用时序数据增强和对比损失, 提出的方法 CoS 有效地增强了学习到的每一层的 feature 质量, 从而获得了更通用的 Representation。该方法表现出显著的可扩展性, 可以无缝集成到各种 HAR 模型中, 而不增加任何计算量。

专业技能

算法方面: 1) 能够复现例如 FedAvg, FedProx, FedRep, MOON 等十几种联邦算法, 并仍然在学习和复现顶级会议的最新工作; 2) 掌握复现 SimCLR, BYOL, MoCo 等经典的对比学习算法, 并在研究 Denoising AutoEncoder 领域的生成式自监督算法; 3) 良好的代码复现能力。开源的代码已经 130+ stars, 并被如极市平台等的主流公众号转载。

职务方面: 1) 与老师合作审稿, 据目前为止已经审稿三十几篇 (AAAI, TNNLS, TKDE, TMC, TII, TIE, ESWA, KBS, INS, EAAL...); 被 SCI 期刊 Artificial Intelligence Review (IF: 12.0) 邀请审稿, 可能具有良好的学术热情和潜力。2) 有 Linux 经验, 担任服务器管理员, 负责解决服务器的 bugs。

教育背景

南京师范大学, 电子信息, 硕士

2021.9 - 2024.7

电气与自动化工程学院, 南京