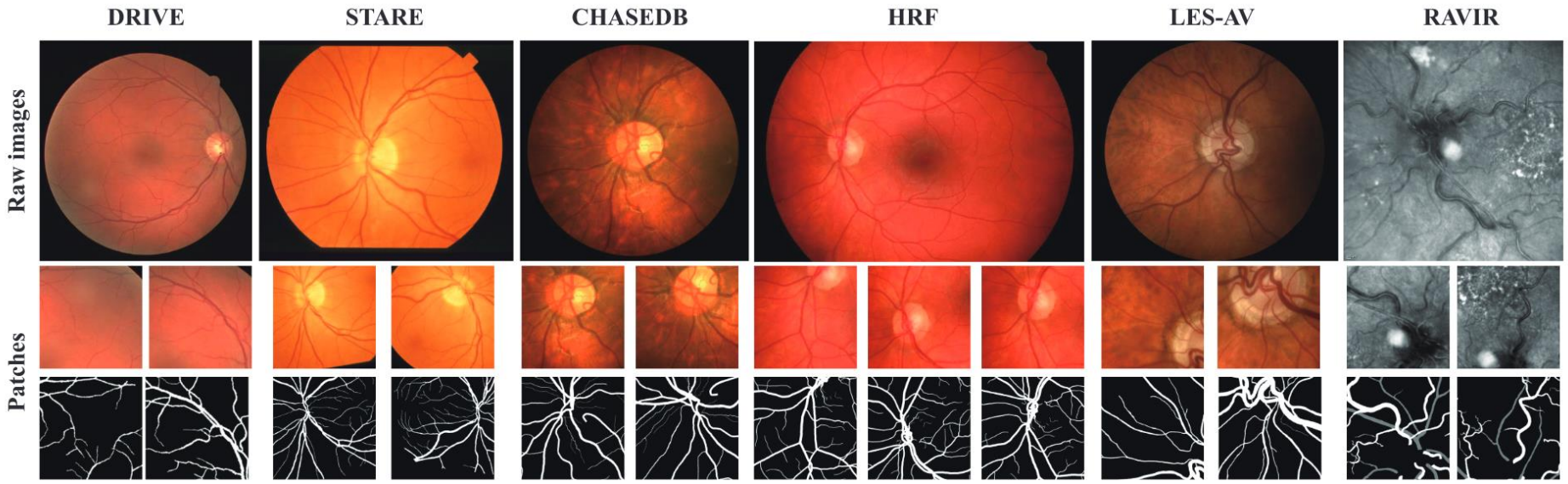
RetinaDA: a diverse dataset for domain adaptation in retinal vessel segmentation

Fei GUO, Shaojia YANG, Rui GE, Wenjuan LI, Aihong LU, Rongzhen FENG, Wu FANG, Qiangguo JIN

Frontiers of Computer Science, DOI: 10.1007/s11704-024-41114-1

Problems & Ideas

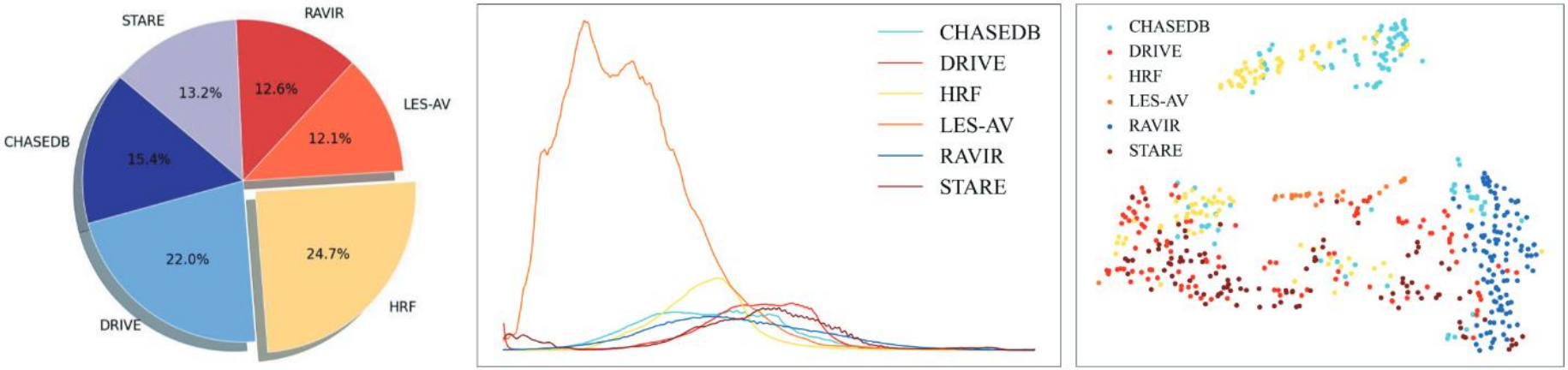
- Problems of deep learning in retinal vessel analysis:
  - Lack of a benchmark dataset for testing domain adaptation models that can generalize across retinal vascular domains
- Ideas: Propose a dataset for benchmarking the robustness and adaptability of deep learning models.



Sample images from RetinaDA. **Top**: Original samples from the constituent datasets. **Bottom**: Corresponding patches derived from the processed original images, highlighting the regions of interest for retinal vessel analysis.

Main Contributions

- Contributions:
  - A dataset termed as RetinaDA for retinal vessel segmentation, which incorporates images from six publicly available datasets.
- Dataset Construction:
  - The dataset is constructed using six widely recognized public datasets: DRIVE, STARE, CHASEDB, High-Resolution Fundus (HRF), LES-AV, and RAVIR datasets.



Left: The proportion of patches from each sub-dataset. **Center**: The distribution of data intensity. **Right**: Domain gap visualization by t-SNE.