

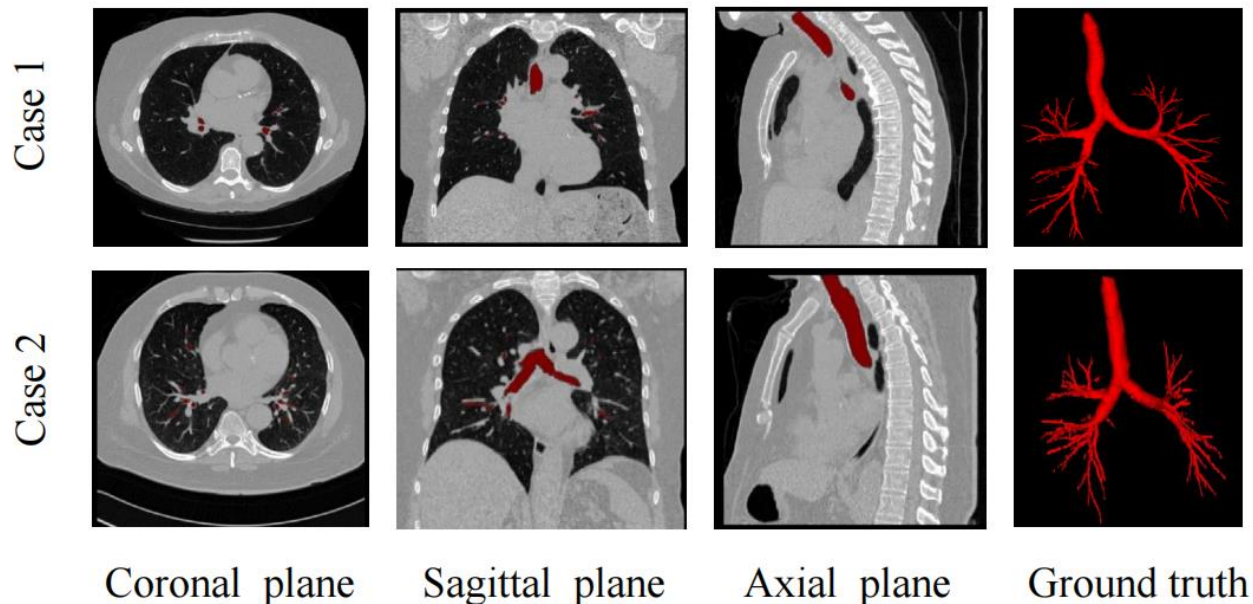
# AirWSeg: a comprehensive dataset collection for pulmonary airway segmentation in medical imaging

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# Problems & Ideas

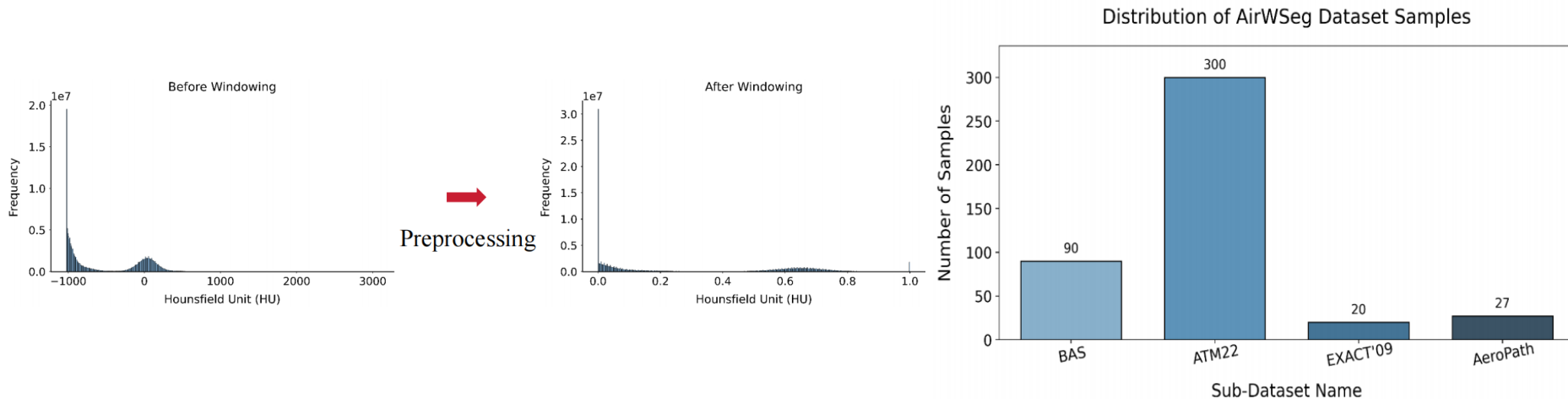
- Problems of deep learning in airway analysis:
  - Lack of dedicated public benchmark datasets for airway segmentation, combined with restricted scale, diversity, and annotation quality in existing datasets, limits model robustness and generalization. This impedes accurate airway segmentation.
- Ideas: Propose a dataset for benchmarking the robustness of deep learning models.



Sample images from AirWSeg. **Top:** Showing the coronal plane, sagittal plane, axial plane and ground truth airway structures of case 1 from left to right. **Bottom:** Case 2, same layout as case 1.

# Main Contributions

- Contributions:
  - A dataset termed as AirWSeg for airway segmentation, which incorporates images from four publicly available datasets.
- Dataset Construction:
  - The dataset is constructed using four widely recognized public datasets: EXACT'09 , Airway Tree Modeling 2022 (ATM'22), Binary Airway Segmentation (BAS), and AeroPath datasets.



**Left:** Data preprocessing process. **Right:** The distribution of each sub-dataset.