

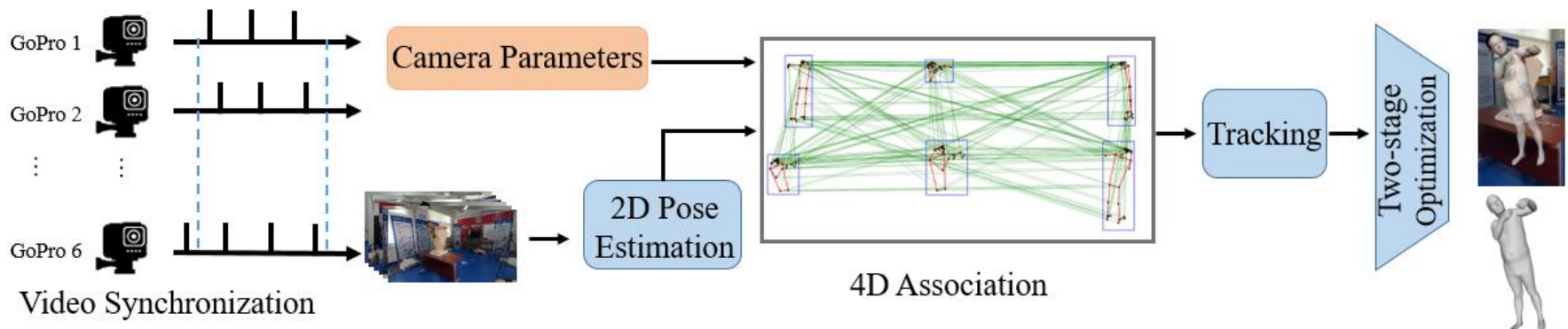
# EMP3D: An Emergency Medical Procedures 3D Dataset with Pose and Shape

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Frontiers of Computer Science, DOI: [10.1007/s11704-025-41174-x](https://doi.org/10.1007/s11704-025-41174-x)

# Problems & Ideas

- Problems of promoting public medical emergency services:
  - Current emergency medical procedures are highly specialized and challenging to promote.
  - Emergency medical procedures often involve multiple participants and complex operations.
  - Lack of a professional and accurate dataset for emergency medical procedures hinders their analysis and generation tasks.
- Ideas: Develop a multi-view acquisition and 3D pose reconstruction framework tailored for emergency medical procedures, enabling the creation of the first comprehensive dataset of emergency medical steps.



The pipeline we designed for constructing a 3D medical emergency procedures dataset

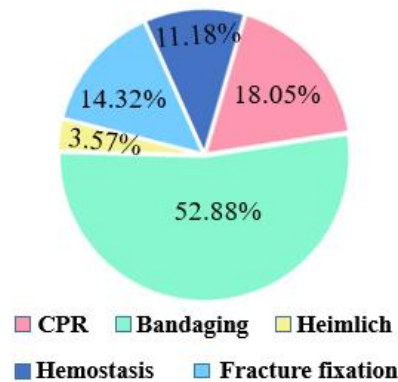
# Main Contributions

- Contributions:
  - Pioneering Rescuer Movement Dataset. EMP3D is the first dataset designed to capture the intricate movements of rescuers during emergency procedures. It includes five actions, all reconstructed in detail. This large scale, standardized 3D dataset focuses on specialized medical actions;
  - High-precision body reconstruction. EMP3D attains remarkable accuracy by leveraging multi-view cameras, effectively tackling challenges such as depth ambiguity and occlusion.



(a)

(b)



(c)



(d)

(a) showcases various types of medical emergency actions; (b) We randomly select a type of medical emergency action, and present the projection results of the 3D SMPL-H model from six different viewpoints; (c) displays statistics on data types, and (d) indicates camera positioning.