Leveraging Auxiliary-Tasks for Height and Weight Estimation with Pose-Disentanglement

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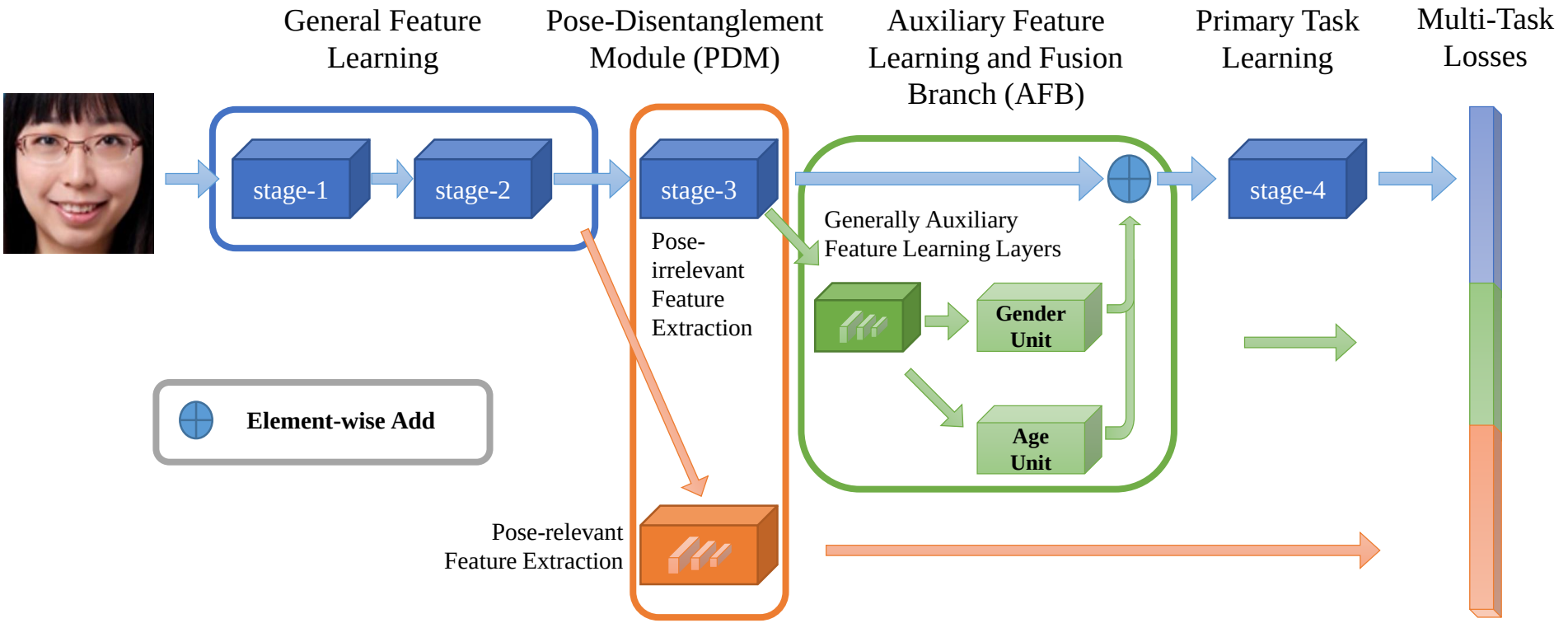
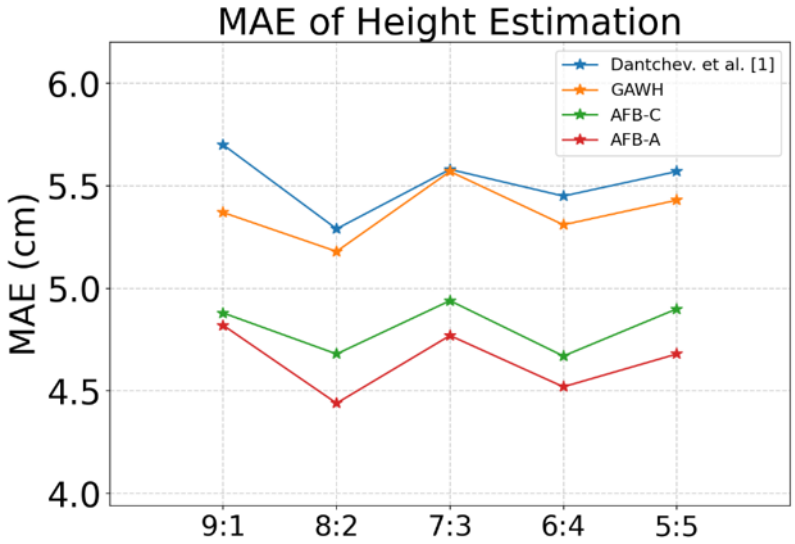
Problems & Ideas

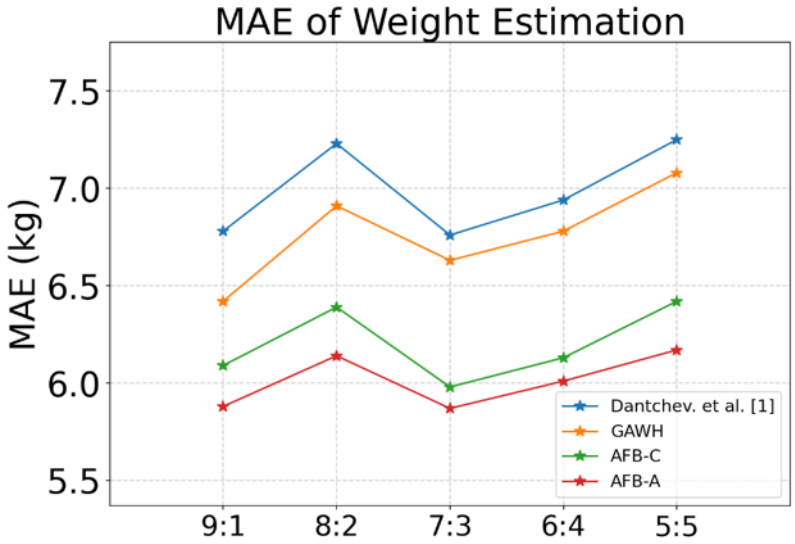
- Problems of conventional height and weight estimation with single face image:
  - Did not make full use of the relevant and irrelevant attributes.
- Ideas: A body height and weight estimation framework that leverages age and gender prediction as auxiliary tasks and decouples pose-relevant feature for better performance.



Main Contributions

- Contributions:
  - A face-based method that utilizes gender prediction and age estimation as auxiliary tasks to improve the performance of body height and weight estimation.
  - A pose disentanglement module to remove pose-relevant feature from face general feature, enhancing the prediction of the primary and auxiliary tasks in case of face images with large pose variations.
  - Experimental results on multiple datasets demonstrate the effectiveness of the proposed method.





[1] Dantcheva A, Bremond F, Bilinski P. Show me your face and I will tell you your height, weight and body mass index. In: Proceedings of International Conference on Pattern Recognition (ICPR). 2018, 3555–3560