**Fast Human Pose Estimation**

**The 7 W's**

Q1. In this work, we investigate the under-studied but practically critical pose model efficiency problem. To this end, we present a new Fast Pose Distillation (FPD) model learning strategy. The FPD trains a lightweight pose neural network architecture capable of executing rapidly with low computational cost.

Q2. It is relevant because it investigates and proposes a model that focuses on improved accuracy, performance, and cost-effectiveness.

Q3 & Q4. Bulat and Tzimiropoulos built parameter binarized CNN models to accommodate resource-limited platforms [7]. But this method leads to dramatic performance drop therefore not satisfied for reliable utilization. In most cases, high accuracy rates are required. Rafi et al. exploited good general-purpose practices to improve model efficiency without presenting a novel algorithm [24]. Further, this method does not pro- vide quantitative evaluation on the trade-off between model efficiency and effectiveness.

Q5.

* We investigate the under-studied human pose model efficiency problem, opposite to the existing attempts mostly focusing on improving the accuracy performance alone at high costs of model inference at deployment. This is a critical problem to be addressed for scaling up the existing deep pose estimation methods to real applications.
* We propose a Fast Pose Distillation (FPD) model training method enabling to more effectively train extremely small human pose CNN networks. This is based on an idea of knowledge distillation that have been successfully exploited in inducing object image categorization deep models.
* We design a lightweight Hourglass network capable of constructing more cost-effective pose estimation CNN models while retaining sufficient learning capacity for allowing satisfactory accuracy rates.

Q6. Compared with existing model compression techniques such as network parameter binarization, the proposed method achieves highly efficient hu- man pose models without accuracy performance compromise.