# Boosting-Based Face Detection and Adaptation (Paperback)

By Cha Zhang, Zhengyou Zhang

Morgan Claypool Publishers, United States, 2011. Paperback. Condition: New. Language: English . Brand New Book. Face detection, because of its vast array of applications, is one of the most active research areas in computer vision. In this book, we review various approaches to face detection developed in the past decade, with more emphasis on boosting-based learning algorithms. We then present a series of algorithms that are empowered by the statistical view of boosting and the concept of multiple instance learning. We start by describing a boosting learning framework that is capable to handle billions of training examples. It differs from traditional bootstrapping schemes in that no intermediate thresholds need to be set during training, yet the total number of negative examples used for feature selection remains constant and focused (on the poor performing ones). A multiple instance pruning scheme is then adopted to set the intermediate thresholds after boosting learning. This algorithm generates detectors that are both fast and accurate.We then present two multiple instance learning schemes for face detection, multiple instance learning boosting (MILBoost) and winner-take-all multiple category boosting (WTA-McBoost). MILBoost addresses the uncertainty in accurately pinpointing the location of the object being detected, while WTA-McBoost addresses the uncertainty...

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