

Comprehensive Review of Computer Vision Analytics for Women's Safety

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Abstract: *The increasing rates of violence against women in public places have created a need for early intervention based systems for threat alert. This paper aims to present the state-of-art in implementing safety enhancements using AI solutions for object detection, gender classification, gesture recognition, and anomalies detection. Existing studies are reviewed and the latest research works are examined to find out about the capacity and constraints of surveillance systems leaning towards deep learning schemes such as YOLO, CNN, and LSTM to analyse real-time video. The review also outlines some limitations with the high achievable accuracy, low false positive rates, as well as the ethical dilemmas of privacy and security. Moreover, this paper reviews how alert mechanisms interrelate with law enforcement and looks at the possibility of employing large-scale cloud-based infrastructures for other purposes. This paper is the first step in building a viable, expansive, and moral use of AI technology to increase women's security in urban settings. The increasing rates of violence against women in public places have created a need for early intervention based systems for threat alert. This paper aims to present the state-of-art in implementing safety enhancements using AI solutions for object detection, gender classification, gesture recognition, and anomalies detection. Existing studies are reviewed and the latest research works are examined to find out about the capacity and constraints of surveillance systems leaning towards deep learning schemes such as YOLO, CNN, and LSTM to analyse real-time video. The review also outlines some limitations with the high achievable accuracy, low false positive rates, as well as the ethical dilemmas of privacy and security. Moreover, this paper reviews how alert mechanisms interrelate with law enforcement and looks at the possibility of employing large-scale cloud-based infrastructures for other purposes. This paper is the first step in building a viable, expansive, and moral use of AI technology to increase women's security in urban settings.*

Keywords: Computer Vision, Safety Detection, Deep Learning, Machine Learning

