Learning human motion features and trajectory predictions in large changing environments

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***Abstract*—Recent developments in machine learning have made it especially interesting for use in the field of autonomous robotics. We introduce neural networks, that can identify human beings without implying personal observations and track them over a longer period of time, as well as predict independent trajectories. These findings are especially interesting in the service industry, where the robot can learn to move through crowds or approach people to serve their interests.**

***Keywords*—IEEEtran, journal, LaTeX, paper, template.**

I. Introduction

Autonomous robots are making their way from the production industry to the service industry. This change introduces a new set of problems, that deal with interactions of people and robots. Some of these problems can be simplified by first detecting persons, which then allows for example, to follow people, approach or evade them while navigating through an environment.

All of these problems can be solved with model-based solutions, but since neural networks are becoming more and more viable, we introduce a new approach, that does not require knowledge about people or their movements. Instead, the network will find characteristics on its own and place unique identifiers on persons, which can then be passed onto further problems.

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References

[1] H. Kopka and P. W. Daly, *A Guide to LaTeX*, 3rd ed. Harlow, England: Addison-Wesley, 1999.