Deep Q-Learning for Home Automation

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Abstract

In this paper, the first deep reinforcement learning model for home automation systems is presented. Home automation has been one of the most important applications in the field of Artificial Intelligence. The system should learn the pattern and behaviour of the user automatically from experience and take future actions accordingly. The system proposed here makes use only of images to learn the user’s needs using Deep Q-Learning, thus minimizing the use of any sensors and other hardware. The model makes use of a Convolutional Neural Network that takes as input, the image and outputs the future reward for each action. The system was tested with images of a house and describes the methods and results in the paper.

References

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Research, 2012.

2. Natalie Kcomt Ch’e, Niels Pardons, Yves Vanrompay, Davy Preuveneers, and Yolande Berbers. An intelligent domotics system to automate user actions. In Ambient Intelligence and Future Trends-International Symposium on Ambient Intelligence (ISAmI 2010), pages 201–204. Springer, 2010.


Index Terms

Computer Science Artifical Intelligence

Keywords

Home Automation, Smart Homes, Deep Q-Learning, Reinforcement Learning