

# **Studies in Computational Intelligence**

Volume 1030

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# Robotics and AI for Cybersecurity and Critical Infrastructure in Smart Cities

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ISSN 1860-949X

ISSN 1860-9503 (electronic)

Studies in Computational Intelligence

ISBN 978-3-030-96736-9

ISBN 978-3-030-96737-6 (eBook)

<https://doi.org/10.1007/978-3-030-96737-6>

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The registered company address is: Gewerbestrasse 11, 6330 Cham, Switzerland

# Preface

In the early days of AI, Artificial Intelligence (AI) and Robotics were inextricably linked, but have since separated. One of the first ambitions of artificial intelligence was to create embodied intelligent systems. However, such a goal has proven to be rather difficult, and researchers have separated its several unique elements and concentrated on progressing on each independently; this has resulted in AI and robotics evolving as disparate study lines with minimal cross-pollination of ideas. With breakthroughs in both sectors, there is increasing interest in integrating the two disciplines in order to generate a separate trend in integrated AI and robotics. AI in smart cities will play a significant part in advancing urbanization's goal of sustainable development by equipping cities with advanced features that enable residents to live, stroll, shop, and enjoy a more secure and comfortable lifestyle in such an environment.

With the greater responsibility placed on AI and robots in the workplace, the danger of a cyberattack increases proportionately. Cybercriminals, who may either locate an open window in the cloud and hack into the pepper robots or bring the financial markets to a halt, are perhaps the most worrying threat. The implications of a cyberattack might be catastrophic for organizations that face this criminal danger in the future. Not only are businesses exposed to direct financial losses, but they are also vulnerable to monetary fines for non-compliance with data privacy regulations. This book synthesizes the state of the art and practise in the emerging subject of integrated AI and robotics for cybersecurity and critical infrastructure in smart cities, highlighting the important directions in which machine intelligence is currently evolving.

This book is intended to provide a relevant reference for students, researchers, engineers, and professionals working in this particular area or those interested in grasping its diverse facets and exploring the latest advances on Robotics and AI for Cybersecurity and Critical Infrastructure in Smart Cities.

We would like to sincerely thank the authors of the contributing chapters as well as reviewers for their valuable suggestions and feedback. The editors would like to thank Dr. Thomas Ditsinger (Springer, Editorial Director, Interdisciplinary Applied Sciences), Professor Janusz Kacprzyk (Series Editor in Chief), and Ms. Rini Christy

Xavier Rajasekaran (Springer Project Coordinator), for the editorial assistance and support to produce this important scientific work. Without this collective effort, this book would not have been possible to be completed. We hope you will enjoy this book and this amazing research field of Robotics and AI for Cybersecurity and Critical Infrastructure in Smart Cities.

Rio de Janeiro, Brazil  
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December 2021

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