

人工智能与自动化(智动化)新工科专业创建思路

韩九强¹

(¹西安交通大学,陕西省 西安市 710049)

摘要: 本文针对自动化专业在新时期的发展问题,结合对工业革命发展规律的分析研究,预测未来以智能化为主要发展方向的第五次工业革命(工业 5.0)将成为推动自动化专业教育的主要内涵。结合新工科建设的复旦共识与天大行动计划,提出“人工智能与自动化(智动化)专业”的创建构想和建设思路。结合工业 X.0 的机器系统概念定义和具有工业 5.0 特征的智动化系统,分析归纳智动化专业的课程体系与实验体系,最后简介了一种群机器柔性智动化系统教学实验平台。

关键词: 智动化; 工业 5.0; 人工智能

The idea to create the major of artificial intelligence and automation

Jiuqiang Han

(¹Xi'an Jiaotong University, Xi'an 710049, Shaanxi Province, China)

Abstract: According to the development problems of automation major in the new era and the analysis of the development pattern of industrial revolutions, we proposed that the main content of automation major education in the future is artificial intelligence and automation, which is the development direction of the Fifth Industrial Revolution (Industry 5.0). Firstly, on the basis of Fudan Consensus and Tianda Action, we came up with the idea to create the major of artificial intelligence and automation. Secondly, we analyzed the course system and experimental system of this new major, combining the definition of machines in Industry X.0 and the systems with all the features of Industry 5.0. Lastly, we introduced a teaching experiment platform of flexible intelligent swarm robotic system.

Key Words: Artificial intelligence and automation; Industry 5.0; Artificial intelligence

1 自动化专业的辉煌与挑战

随着我国电力技术的应用,早在 1952 年高校成立了服务工业的工业企业电气化专业,1958 年由于我国国防工业发展的需要,新成立了服务于军工的自动控制专业,从此,自动化专业就分为服

务于工业企业的工企专业(强电)和服务于军工的自动控制专业(弱电)两个专业方向发展。在 20 世纪六七十年代,自动控制发展成为工业皇冠上的一颗璀璨明珠,辉煌数十年。西安交通大学的自动化专业与全国高校同步发展。

随着工业快速发展和自动控制理论技术的完善普及,20 世纪 90 年代,许多行业的工科院系利

联系人: 韩九强.

第一作者: 韩九强(1951—),男,本科,教授.

- Technology and Equipment (Rubber), 2015, 41 (21): 1-14.
- [2] Wang De Xian. German Industry 4.0 Strategy and Its Enlightenment to the Development of Chinese Industry [J]. Taxation & Economy, 2016, 1: 9-15.
- [3] Kagermann Henning, Wahister Wolfgang, Helbig Johannes. Securing the future of German manufacturing industry: Recommendations for implementing the strategic initiative Industrie 4.0; Final report of the Industrie 4.0 Working Group [M]. 2013.
- [4] Dragan Vuksanović, Jelena Ugarak, Korčok Davor. Industry 4.0: the future concepts and new visions of factory of the future development [M]. Industry 40: The Future Concepts and New Visions of Factory of the Future Development. 2016.
- [5] 韩九强, 吕红强, 钟德星. 工业革命发展的内在规律及未来工业 5.0 趋势分析[J]. 信息技术与信息化, 2016, (8): 87-90.