Manual Robotic Intelligence - and the Success of Assistant Robots

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Abstract:

Many forecasts predict a dramatic increase in the non-industrial robotics market in the coming years. For actual assistant robots to become consumer products, a leap in their manipulation skills is called for. If they are intended to help in performing daily tasks at home, the perceived quality of service requires a successful physical interaction with the environment. This poses a number of challenges such as adaptability, autonomy, functionality, resiliency, cost-effectiveness, and safety. I will also look at robots as cyber-physical networked systems and consider the possibilities of cloud computing. I will compare them with robots in online shopping warehouses, with some lessons learned from our participation in the Amazon Robotics Challenge 2017.

Angel P. del Pobil is a Professor of Intelligent Systems at Jaume I University (Spain), where he was the founding director of the UJI Robotic Intelligence Laboratory. He has been Co-Chair of two Technical Committees of the IEEE Robotics and Automation Society and is a member of the Governing Board of the Intelligent Autonomous Systems (IAS) Society (2012-present) and EURON (European Robotics Research Network of Excellence, 2001-2009). He has over 300 publications, including 14 books, the last three published by Springer. Prof. del Pobil was co-organizer of over 50 workshops and tutorials in international conferences. He was Program Co-Chair of the 11th International Conference on Industrial and Engineering Applications of Artificial Intelligence, and General Chair of the 13th International Conference on Adaptive Behaviour (SAB 2014) and of five editions of the IASTED International Conference on Artificial Intelligence and Soft Computing (2004-2008). He is Associate Editor for IEEE ICRA and IEEE IROS and has served on the program committees of over 200 international conferences, such as IJCAI, ICPR, ICRA, IROS, IAS, ICAR, CIRA, etc. The UJI Robotic Intelligence Lab has organized 14 editions of IURS, the International UJI Robotics School. He has been General Chair for IURS 2005 on Robotics and Neuroscience, IURS 2006 on Humanoid Robots, IURS 2009 on Visuomotor Coordination, IURS 2012 on Perceptual Robotics and the 2015 and 2020 IEEE-RAS Summer Schools on Experimental Methodology, Performance Evaluation and Benchmarking in Robotics. He has been involved in intelligent systems research for the last 30 years. Professor del Pobil has been invited speaker of 64 tutorials, plenary talks, and seminars in 14 countries. He serves as associate or guest editor for 12 journals, and as expert for research evaluation at the European Commission, the US National Science Foundation and the Spain Ministry of Science. He has supervised 16 Ph.D. Thesis, including winner and finalists of the Georges Giralt EURON PhD Award and the Robotdalen Scientific Award Honorary Mention. He has been Principal Investigator of 30 research projects. Del Pobil is a Distinguished Lecturer of the IEEE Robotics and Automation Society and a lifetime member of the Association of the Advancement of Artificial Intelligence (AAAI).