

Dr Manolis Chiou

Research Fellow in Robotics
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Research Interests:

Manolis Chiou is a research fellow in the Extreme Robotics Lab, University of Birmingham UK and the National Centre for Nuclear Robotics (NCNR). His work is highly interdisciplinary combining Artificial Intelligence, Human-Robot Interaction, human factors and psychology in order to make remotely operated robots (e.g. in Search and Rescue) more autonomous and efficient. More specifically, he is interested in robotic systems that can regulate their level of autonomy (e.g. variable autonomy in the form of Mixed-Initiative) in order to actively assist human operators. He has been actively involved in teaching, supervising students, public communication and engagement of robotics. Among others, delivering the “robotics master-classes” for the Royal Institution of Great Britain and leading the Birmingham autonomous robotics club in international robotics competitions.

Academic and employment history

January 2018 – Present	Research fellow: Extreme Robotics Lab, University of Birmingham, EPSRC funded National Centre for Nuclear Robotics (NCNR).
May 2017 – January 2018	Research scientist: Part of conscript military service at the Simulation and War Games branch of the Greek army; Center of Informatics Technology support of the Hellenic army.
January 2017 – May 2017	Research fellow: Extreme Robotics Lab, University of Birmingham; EPSRC funded UK - S. Korea civil nuclear project “Robotic system for retrieval of contaminated materials from hazardous zones”.
January 2017	PhD in Robotics and Artificial Intelligence, University of Birmingham. PhD funded and co-supervised by UK’s ministry of defence, defence science and technology laboratory (dstl). Thesis title: “Flexible robotic control via co-operation between an operator and an AI based control system”.
March 2013 – August 2013	Research assistant: Controlling a robotic arm via a Brain-Computer-Interface (BCI) using signals from electroencephalography (EEG). School of Psychology, University of Birmingham.
September 2012	MSc in Computational Intelligence. University of Sheffield. Thesis title: “Manipulation and transport of an object via caging with a swarm of robots”.

June 2011

Ptychion in Automation Engineering (**BEng** in Control Engineering).
Technological Education Institute of Piraeus, Dept. of Automation
(currently named University of West Attica).

Academic achievements

- **Invited lecture 2019:** In M.Sc. programme “frontiers of robotics research” in the University of Lincoln.
- **Program committee in IROS 2018 workshop:** “Task-Informed Grasping (TIG) for rigid and deformable object manipulation”.
- **Finalist for best paper award, IROS 2016:** The paper “Experimental analysis of a variable autonomy framework for controlling a remotely operating mobile robot.” was shortlisted for the best paper award in IEEE/RSJ International Conference on Intelligent Robots and Systems.
- **RoCKIn@Home, 2015:** Won two prizes with BARC in the robotics challenge RoCKIn@Home: a) best team in functionality benchmark “Object Perception”, b) third overall place in the competition.
- **RoCKIn@Home, 2014:** Won several prizes with BARC in the robotics challenge RoCKIn@Home: a) best team in task benchmark “Getting to know my home”; b) best team in task benchmark “Welcoming Visitors”; c) second overall place in the competition.

Academic activities

- **Visiting Lecturer, 2018:** Given lectures on robotics for an MSc course at the University of West Attica, Greece.
- **Teaching assistant, 2014-2017:** Robot programming module, School of Computer Science, University of Birmingham. Responsibilities included teaching, marking and heavy involvement in curriculum design.
- **Students supervision:** Supervised/supervising several students’ research projects and theses. These students included undergraduate and masters’ students from the University of Birmingham and intern students from various institutions across Europe (e.g. Erasmus+ students).
- **Science outreach:** Actively engaged in a plethora of science outreach events. These events included among others: I2fest; Athens Digital; university of Birmingham open days; BBC’s “Make it Digital” and others.
- **Robotics Master-classes for Royal Institution of Great Britain, 2015-2016:** Organized and delivered a plethora of talks and classes aiming at teaching and promoting robotics and science in schools across the UK. The Royal Institution of Great Britain is the flagship organization for science outreach and education in the UK.
- **Leading the Birmingham autonomous robotics club (BARC), 2014-2016:** A robotics club in which students were getting hands-on experience on using state-of-the-art robots. This was done through student projects, workshops and mainly by participating in robotic competitions such as the EU commission funded RoCKIN@Home robotics challenge.
- **Robotics hack-day, 2015:** Organized and delivered a one-day workshop in the University of Birmingham, teaching hands-on skills on using robots and the robot operating system (ROS).

- **Work experience workshops, 2015-2016:** Organized and delivered workshops aiming to give a taste of Computer Science to high school students. Hosted by the University of Birmingham.

Training

- **Postgraduate Enterprise Summer School, 2015:** An intensive weeklong school, providing training in a wide range of specialist areas aiming in carrier development and entrepreneurship. Hosted by the University of Birmingham.
- **Learning and teaching in higher education courses, 2013, 2014:** A series of courses hosted by the University of Birmingham, intended to train postgraduate students for teaching.
- **Event Related Potentials summer school, 2013:** Summer school regarding theory and practice of electroencephalography (EEG), focused on event related potentials (ERPs). Hosted by the University of Birmingham, School of Psychology.

Publications

- Chiou, M., Hawes, N., & Stolkin, R. (2019). Mixed-Initiative variable autonomy for remotely operated mobile robots. Accepted to appear in the International Journal of Robotic Research.
- Chiou, M., Bieksaite, G., Hawes, N., & Stolkin, R. (2016). Human-Initiative Variable Autonomy: An Experimental Analysis of the Interactions Between a Human Operator and a Remotely Operated Mobile Robot which also Possesses Autonomous Capabilities. In AAI Fall Symposium Series: Shared Autonomy in Research and Practice (pp.304-310).
- Chiou, M., Bieksaite, G., Stolkin, R., Hawes, N., Shapiro, K. L., & Harrison, T. S. (2016). Experimental analysis of a variable autonomy framework for controlling a remotely operating mobile robot. In IEEE/RSJ International Conference on Intelligent Robots and Systems (IROS) (pp. 3581-3588).
- Chiou, M., Hawes, N., Stolkin, R., Shapiro, K.L. , Kerlin, J.R., & Clouter ,A. (2015). Towards the Principled Study of Variable Autonomy in Mobile Robots. In IEEE International Conference on Systems, Man, and Cybernetics (SMC) (pp. 1053-1059).

References available on request