Paola Ardón Ramírez

Personal Data

Address:	Edinburgh, EH165XN. United Kingdom
Phone:	+44 7412 652412
website:	https://paolaardon.github.io
email:	paola.ardon.ramirez@gmail.com / paola.ardon@ed.ac.uk

Professional Summary

I am a Ph.D student at the Edinburgh Centre for Robotics member of the Robust Autonomy and Decisions (Rad) at University of Edinburgh and Social robotics group at Heriot-Watt University. In my research, I am including affordances in a robust autonomous framework for assistive robots. One of the most needed tasks for robots in indoor environments is manipulation. In order to achieve a robust grasp application autonomy in humanoid robots is essential. Hence the need to improve grasp through the concept of affordances.

Education

- Current: Centre for Doctoral training **PhD. in Robotics and Autonomous Systems** . University of Edinburgh and Heriot-Watt University, UK. **Expected graduation date: November 2021**.

- September 2018: Centre for Doctoral training **Master of Science in Robotics and Autonomous Systems**. University of Edinburgh and Heriot-Watt University, UK. **Graduation with distinction**.

- June 2017: Advanced postgraduate program based on 3D vision and robotics **Master of Science in Computer Vision and Robotics - VIBOT Erasmus Program.** Joint Program in three different universities: University of Bourgogne - France, University of Girona - Spain, Heriot-Watt University United Kingdom. **Graduated with distinction**.

- May 2013: **Bachelor's Degree in Electrical and Computer Engineering** - minor in Business. John Brown University, Siloam Springs AR, USA. **Graduated cum laude**

Languages

Spanish:	Mothertongue
English:	High Level

Scholarships and Awards

- September-2018: The Scottish Informatics and Computer Science Alliance (SICSA) – Research funding to assist conferences.

- April-2018: The Scottish Informatics and Computer Science Alliance (SICSA) – Research funding to assist summer schools.

- August-2017: James Watt Doctoral Scholarship – Based on academic performance.

- June-2015: VIBOT Erasmus Mundus Scholarship Program – Based on academic performance.

- January 2009: Walton Scholarship Program – Based on academic performance.

- Spring 2013: Engineering Technical Award.

- Spring 2013: Eagle Scholar.

- Spring 2013: Third place in the Systems Engineering Paper for Lunabotics Mining Competition at NASA.

- Spring 2013: Second place in the Project Presentation for Lunabotics Mining Competition at NASA.

Publications

- Ardón, P.; Pairet, È.; Petrick, R.; Ramamoorthy, S.; and Lohan K. S. Reasoning on Grasp-Action Affordances, in Conf. Towards Autonomous Robotic Systems. July 2019.

- Pairet, È.; Ardón, P.; Mistry, M. and Petillot, Y. Learning and Composing Primitive Skills for Dual-arm Manipulation, in Conf. Towards Autonomous Robotic Systems. July 2019.

- Ardón, P.; Pairet, È.; Ramamoorthy, S.; and Lohan, K. S. Towards robust grasps: Using the environment semantics for robotic object affordances. 2018. In AAAI Fall Symposium. Reasoning and Learning in Real-World Systems for Long-Term Autonomy. AAAI Press.

- Pairet, È.; Ardón, P.; Brox, F.; Mistry, M.; and Petillot, Y. 2018a. Learning and generalisation of primitives skills towards robust dual-arm manipulation. In AAAI Fall Symposium. Artificial Intelligence for Reasoning and Learning in Real-World Systems for Long-Term Autonomy. AAAI Press.

- Ardón, P.; Pairet, È.; Ramamoorthy, S.; and Lohan, K. S.. Object affordances by inferring on the surroundings, In Proc. IEEE Workshop on Advance Robotics and its Social Impact, 2018. In press.

- Ardón P.; Dragone, M. and Erden, M. S.Reaching and Grasping of Objects by Humanoid Robots through Visual Servoing. 6 Jun 2018 Haptics: Science, Technology, and Applications. Springer, p. 353-365 13 p. (Lecture Notes in Computer Science; vol. 10894).

Research Projects

- **Current – PhD Research on Robotic Object Affordances:** Investigate on action affordances for indoor environment objects with the purpose of improving reaching and grasp behaviours.

- **Current – ORCA Hub:** Integration and optimisation of the different robotic platforms and algorithms involved in the development of the project.

- **Spring 2018 – Master thesis on Reasoning Grasp-Action Affordances:** Design and implement a reasoning technique for object grasp-action affordances.

- **Spring 2017 – Master thesis on Visual Servoing and Grasping:** Design and implement a visual servoing system on ALdebaran-Softbank platform for Peper robot to grasp objects.

- **Fall 2016 – SLAM and Object Recognition - Pepper Robot:** Group project - Implemented visual SLAM with object recognition based on ERL - service robots competition rules.

- **2015-2016 – Image Segmentation, Optimisation, localisation and path planning algorithms:** Implementation of image processing, classification and recognition algorithms (Pascal project).

- **Spring 2013 – Lunabot NASA Project:** Group project -Lunabotics Mining Competition Project (LMC) organised by NASA. Designed a fully functional prototype of a mining robot that works on the lunar environment collecting regolith. Worked on the electrical system: wireless communication, control and autonomy. Main focus on the IMU system, and autonomy software design.

- **Spring 2012 – Solar Panel Heater:**Group project - Designed the electrical system for a solar panel heater. In charge of: Solar tracking system, settings, monitoring temperature, and user interface features.

Skills

- Programing languages at high level: C++, SQL and C, Python, MATLAB, NIOS II, AHDL, VHDL.

- Well handling of revision control systems (*git, cmake*); organisational frameworks, open source frameworks and cross -platforms (*Qt, openCV, Mevislab, ITK, PBRT*); robotics operative systems (*ROS, NaoqiSDK for Aldebaran*); electrical engineering software interfaces (*Quartus II*); general engineering software (*SolidWorks and Derive*). Additionally, handling of: *Linux-Ubuntu, Macintosh, Windows-Microsoft and LaTeX*.

- Digital communication systems, signal representations, modulations, and control systems.

- Extra curricular courses in the Business Administration and Organisational Leadership areas.

- Evaluate and asses situations effectively through research and compilation of information.
- Being dependable, hard working, innovative, active participation, team work and leadership skills, self motivated and committed to the job.
- Ability to create bonds towards the working group to reach personal and collective progress.

ADDITIONAL EXPERIENCE

- **Sep 2013-Aug 2015 – VAP Engineer at Tigo Honduras-Operation and Maintenance:** Technical support and monitoring to Added Value Platforms (VAP). As well as root Cause Analysis of common and non-common problems regarding the software and hardware.
- **Spring 2012-Spring 2013 – Tutor and Teacher Assistant at John Brown University-Engineering Department:** Tutored and assisted over 25 students for two hours per week providing innovative explanations to clarify doubts. Some of the tutored courses: Electromagnetic, Electrical Circuits, Concepts in Electrical Engineering, and Algebra.
- **May-term 2011 –School Year 2012-2013 – Resident Assistant at John Brown University-Student Development Department:.** Helped to create an appropriate living environment for the residents.

EVENTS AND CONFERENCES

- October 2018 – Universities of Scotland, Scottish Parliament: shared the research experience in the CDT.
- October 2018 – Edinburgh International Science Festival: presented the work "Towards robust grasps: Using the environment semantics for robotic object affordances".
- October 2018 – Edinburgh International Science Festival: presented the master thesis on "Reasoning Grasp-Action Affordances".
- September 2018 – IEEE Workshop on Advanced Robotics and its Social Impacts: presented the work "Object Affordances by Inferring on the surroundings".
- September 2018 – TEDx talk: assisted with the setup and showcase of the different robots to engage the public in technological activities.
- July 2018 – International Summer School on Deep Learning: assisted to the one week deep learning summer school on deep learning.
- June 2018 – EuroHaptics Conference: presented the work "Reaching and Grasping of Objects by Humanoid Robot through Visual Servoing".
- April 2018 – Creativity at Home workshop: assisted to workshop to improve creativity skills.
- April 2018 – Edinburgh International Science Festival: assisted with robots setup and handling to interact with kids at the festival.
- October 2017 – Edinburgh Centre for Robotics Conference: assisted as one of the students of the centre.
- March 2017 – European Robotics Forum: assisted on the organisation of the event.

VOLUNTEERING WORK

- Apr 2019 - current: Cancer Research UK - Edinburgh, UK.
- Aug 2017 - January 2018: First Aid Africa - UK.
- Aug 2013 - July 2015: TECHO - Honduras.
- Jan 2009 - May 2013: PTA translator, Nursing home, high school tutor - USA.

INTERESTS

- Affordances, grasping, robotics, machine learning.
- Reading, travelling, community service.

REFERENCES

Academic References

- *Dr. Katrin Lohan*:
  Associate Professor of School for Mathematical and Computer Sciences Heriot-Watt University
  Mail: Riccarton, Currie Edinburgh, EH144AS
  Phone: +44 (0)131 451 8338
  Email: k.lohan@hw.ac.uk

- *Dr. Robert Marti*:
  Associate Professor at the Computer Vision and Robotics Group Universitat de Girona Mail: 17071 Girona, Spain.
  Phone: +34 972 418876 / fax: +34 972 418976
  Email: robert.mart@udg.edu

- *Dr. Tim Gilmour*:
  Associate Professor of Engineering John Brown University
  Mail:2000 W University JBU Box 3513 Siloam Springs, AR 72761-2112
  Phone: +1 (479) 524 – 7319
  Email: tgilmour@jbu.edu

Professional References

- *Alejandro Servellon*:
  VAP and Rollout Engineer Tegucigalpa MDC, Honduras
  Phone: + (504) 99375464
  Email: aservellon@tigo.com.hn

- *Bryan Cole*
  Resident Director John Brown University
  Mail: 2000 W University JBU Box 3513 Siloam Springs, AR 72761-2112
  Phone: +1 (863) 398-8885
  Email: bcole@jbu.edu

Personal References

- *Prudencio Laines*
  Gerente de desarrollo de negocio. Nationale Nederlanden oficina de Girona
  Mail: Crta. Barcelona 59 E1, Girona, Spain
  Phone: +34 630-440354
  Email: plaines@nnseguros.com