PERSONAL INFORMATION

Full name	**ÈRIC PAIRET ARTAU**
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EDUCATION

2018 / Present	**Centre for Doctoral Training in Robotics and Autonomous Systems** (CDT-RAS)**.** University of Edinburgh and Heriot-Watt University (UK).
2017 / 2018	**Master of Science in Robotics and Autonomous Systems** (MSc-RAS). University of Edinburgh and Heriot-Watt University (UK). *Graduated with distinction.*
2015 / 2017	**Erasmus Mundus master in computer vision and robotics** (VIBOT). University of Burgundy (France), University of Girona (Spain) and Heriot-Watt University (UK). *Graduated with distinction.*
2011 / 2015	**Bachelors in electronic and automation engineering** (GEEIA). University of Girona (Spain). *Graduated with national distinction.*

RESEARCH AND WORK EXPERIENCE

2017 / Present	**Research Assistant**
	Offshore and Robotics for Certification Assets (ORCA Hub), UK
Description:	*Research and deployment of motion planning strategies for mobile base robots and manipulators, and development of a digital-twin simulator.*
2019 / 2020	**Visiting Scholar**
	Kavraki Lab, Rice University, Texas, US
Description:	*Research on experience-based motion planning algorithms for robotic manipulators. Collaboration with Prof. Lydia Kavraki.* 5-month placement.
2016 / 2017	**Research Assistant**
	Underwater Vision and Robotics Research Centre (CIRS), Spain
Description:	*Applied research on motion planning under kinodynamic and probabilistic constraints, and design and integration of control architectures.*
2014 / 2016	**Mechatronics Engineer**
	Underwater Vision and Robotics Research Centre (CIRS), Spain
Description:	*Design, manufacture, and integrate hardware, program firmware and execute mechatronics tasks on underwater robots.*

2013 / 2014	**Laboratory Assistant**
	Department of computer science, applied mathematics and statistics (IMAE) of the University of Girona, Spain
Description:	*Preparation of teaching material for undergraduate engineering statistics courses at the University of Girona.*

2013	**Industrial Automation Engineer**
	Aplicacions Elèctriques (AETech), Spain
Description:	*Program PLCs, configure HMI systems and develop a tool for the management of industrial automation projects.*

2008 / 2011	**Industrial Automation Technician**
	Automatismes Girona (AUGI S.L.), Spain
Description:	*Install, repair and maintain industrial automated systems. Wire up automation control stations. Mechanise small structures.*

2007 / 2008	**Electrical Technician**
	CLIFEL S.A., Spain
Description:	*Install, repair and maintain installations of electricity, domestic water and gas in housing, offices, shops and small industry.*

RELEVANT SKILLS

Languages: English (fluent), Spanish (mother tongue), and Catalan (mother tongue).

Personal skills: hard-working, with teamwork and leadership skills, self-motivated and committed to the job. Multidisciplinary knowledge in theoretical and in-field robotics.

Software programming: C/C++, Python, MATLAB, Visual Basic, and LaTeX. good handling of the git revision development control.

Robotic platforms/libraries: ROS, OROCOS, YARP, OMPL, MoveIt and OpenCV.

Automation programming: Labview, myRIO, PL7, Vijeo Designer, Vijeo Citect, and Stäubli Robotics Studio.

Electronic prototyping: Multissim, Ultiboard, and Altium.

Miscellaneous: Autocad, Blender, Microsoft, Linux-Ubuntu, Macintosh and Windows.

HONOURS AND AWARDS

| 2017 / 2021 | Doctoral training scholarship (£78,608) from the Engineering and Physical Sciences Research Council (EPSRC) to undertake a PhD in Robotics and Autonomous Systems at the Edinburgh Centre for Robotics. |
| 2019 | Early researcher grant (£7,250) from the Scottish Informatics and Computer Science Alliance (SICSA) to visit Rice University, Texas (US). |

2019	Early researcher grant (£3,000) from the Engineering and Physical Sciences Research Council (EPSRC) to visit Rice University, Texas (US).
2019	Travel award ($600) from The Institute of Electrical and Electronics Engineering (IEEE) to attend the International Conference on Intelligent Robotics held in Macau (China).
2019	Travel grant (£1,000) from the Scottish Informatics and Computer Science Alliance (SICSA) to attend the International Conference on Intelligent Robotics held in Macau (China).
2019	2 papers get a distinction at TAROS conference. Advanced Robotics at Queen Mary (ARQ) best paper award, and best paper award finalist.
2018	1st prize (3,300€) from the Spanish Ministry of Education for outstanding academic and research career.
2018	Travel grant (£500) from the Scottish Informatics and Computer Science Alliance (SICSA) to attend to the AAAI Fall Symposium Series held in Arlington, VA (US).
2018	Best overall Task Benchmark and Functional Benchmark during the 2017 European Robotics League (ERL) Emergency Service Robots. Role: team leader and motion planning researcher of the University of Girona team.
2018	1st prize in the International Winter School on Humanoid Robot Programming competition held in Santa Margerita de Ligure (Italy). Organised by the Instituto Italiano di Tecnologia (IIT). Role: team leader and task planning in a humanoid robot.
2018	Travel grant (£500) from the Scottish Informatics and Computer Science Alliance (SICSA) to attend to the International Winter School on Humanoid Robot Programming held in Santa Margerita de Ligure (Italy).
2017	Three 1st prizes (total 14,000€) in the land-air-sea competition at the European Robotics League (ERL) Emergency Service Robots celebrated in Piombino (Italy). Organised by the Centre for Maritime Research for Experimentation (CMRE), the North Atlantic Treaty Organization (NATO), and the Partnership for Robotics in Europe (SPARC). Role: team leader and motion planning researcher of the University of Girona team.
2017	"Manel Xifra i Boada" (MXB) prize from the Engineers College of Girona (Spain) and COMEXI CTEC group for outstanding BSc thesis.
2015 / 2017	Erasmus Mundus scholarship (34,000€) from the European Education, Audiovisual and Culture Executive Agency (EACEA) to undertake the Erasmus Mundus master in computer vision and robotics (VIBOT).

2015 / 2017	"Fundació Catalunya - La Pedrera" scholarship (10,000€) from the Bank of Catalonia (Spain) to undertake the Erasmus Mundus master in computer vision and robotics (VIBOT).
2016	"Premis Patronat Politècnica" prize (700€) from the University of Girona (Spain) for outstanding BSc thesis.
2015	Two special prizes (Texas Instruments Special Prizes for Innovation, and Marine Trials Student Prize) in the euRathlon robotic competition celebrated in Piombino (Italy). Organised by the Centre for Maritime Research for Experimentation (CMRE), and the North Atlantic Treaty Organization (NATO). Role: control architecture software developer of the University of Girona team.
2015	Two 1st prizes (total 12,000€) at the land-air-sea euRathlon robotic competition celebrated in Piombino (Italy). Organised by the Centre for Maritime Research for Experimentation (CMRE), and the North Atlantic Treaty Organization (NATO). Role: control architecture software developer of the University of Girona team.
2014 / 2015	"Beca de Transferència i Innovació" (BTI) scholarship (5,600€) from the University of Girona (Spain) to promote technological innovation.
2014 / 2015	"Beca de Colaboración" scholarship (2,000€) from the Spanish government to do an internship in the Underwater Vision and Robotics Research Centre (CIRS), University of Girona (Spain).
2014	Four 1st prizes (total 11,000€) at the euRathlon sea robotic competition celebrated in La Spezia (Italy). Organised by the Centre for Maritime Research for Experimentation (CMRE), and the North Atlantic Treaty Organization (NATO). Role: electronic and mechanical technician of the University of Girona team.
2013 / 2014	"Beca de Colaboración" scholarship (2,000€) from the Spanish government to do an internship in the Department of computer science, applied mathematics and statistics (IMAE), University of Girona (Spain).

INVITED TALKS, OUTREACH AND COMPETITIONS

June 2020	Invited speaker to give a seminar on motion planning under uncertainty to the Assured Reliable Interactive Autonomous Systems (ARIA) group of the University of Colorado Boulder (US).
March 2020	External reviewer of the AQU committee assessing the quality of three master programmes of the Universitat Politècnica de Catalunya (Spain).
November 2019	Speaker at the International Conference of Intelligent Robots (IROS) held in Macau (China).

October 2019	Speaker at the annual Edinburgh Centre for Robotics Conference held in Edinburgh (UK).
July 2019	Commencement speaker at the 1st graduation ceremony of the polytechnic school at University of Girona (Spain).
July 2019	Speaker at the annual Towards Autonomous Robotic Systems (TAROS) conference held in London (UK).
June 2019	Volunteer at the ORCA Hub stand during the Summer Science Exhibition organised by the Royal Society. London (UK).
May 2019	Speaker at the all-hands ORCA Hub meeting held in Edinburgh (UK).
October 2018	Speaker at the AAAI FSS, Reasoning and Learning in Real-World Systems for Long-Term Autonomy held in Arlington (US).
October 2018	Speaker at the annual Edinburgh Centre for Robotics Conference held in Edinburgh (UK).
October 2018	Speaker at the International Conference of Intelligent Robots (IROS) held in Madrid (Spain).
June 2018	Volunteer at the Edinburgh Centre for Robotics stand during the TEDx Glasgow event (UK).
April 2018	Member of the Edinburgh Centre for Robotics team outreaching and the Science Festival held in Edinburgh (UK).
March 2018	Invited speaker at the European Robotics Forum (ERF) held in Tampere (Finland) to disseminate the results obtained at the 2017 European Robotics League (ERL) Emergency Service Robots competition.
February 2018	Team leader of the winning team of the four-days competition at the Winter School on Humanoid Robot Programming held in Santa Margerita de Ligure (Italy). Organised by the Instituto Italiano di Tecnologia (IIT).
September 2017	Team leader of the winning team (University of Girona) at the European Robotics League (ERL) Emergency Service Robots competition held in Piombino (Italy).
June 2017	Selected speaker to disseminate the research on motion planning during the 2017 VIBOT day (Spain).
February 2017	Assistant on the training course on SPARUS II autonomous underwater vehicle in the Underwater Vision and Robotics Research Centre (Spain).
March 2016	External reviewer of the AQU committee assessing the quality of four master programmes of the Universitat Autònoma de Barcelona (Spain).
September 2015	Member of the winning team at the euRathlon competition held in Piombino (Italy).

September 2014	Member of the winning team at the euRathlon competition held in La Spezia (Italy).
June 2014	Member of the organising team of the Summer School on underwater robotics held in Sevilla (Spain).

TRAINING AND CERTIFICATION

June 2019	Attendee at the Centre Doctoral Training Conference, Edinburgh (UK).
May 2019	Trainee at an Audience and Public Engagement seminar (8h).
September 2018	Trainee at a pitching masterclass by Mel Sherwood (5h).
June 2018	Trainee at an IP seminar by Converge Challenge (full-day).
April 2018	Trainee at a Creativity@Home seminar by SkillFluence (17h).
February 2018	Trainee at the 2-week intensive training on Humanoid Robot Programming organised by IIT held in Santa Margerita de Ligure (Italy).
October 2017	Attendee at the annual Edinburgh Centre for Robotics Conference held in Edinburgh (UK).
May 2017	Demonstrator of the SPARUS II AUV at the European Marine Robotics and Applications (EMRA) held in Girona (Spain).
June 2016	Attendee at the 2016 VIBOT day held in Girona (Spain).
January 2016	Trainee at the AQU course on university quality assessment held in Barcelona (Spain) (5 hours).
April 2015	Attendee at the Navigation, Guidance and Control of Underwater Vehicles (NGCUV) conference held in Girona (Spain).
April 2015	Trainee at Technological Innovation and Transference seminars (30h).
June/July 2012	Summer school with Immersive English Courses -- Two months studying abroad English at CES in Worthing (UK).

PUBLICATIONS AND THESIS

È. **Pairet**, J. D. Hernández, M. Carreras, Y. Petillot, and M. Lahijanian. "Online Mapping and Motion Planning under Uncertainty for Safe Navigation in Unknown Environments", in the International Journal of Robotics Research. *Under review*. https://youtu.be/I5X_QFKDpeI

P. Ardón, **È. Pairet**, K. Lohan, S. Ramamoorthy, and R. Petrick. "Affordances in Robotic Tasks - A Survey", in IEEE Transaction on Robotics. *Under review*.

Y. Carreno, **È. Pairet**, Y. Petillot, and R. Petrick. "A Decentralised Strategy for Heterogeneous AUV Missions via Goal Distribution and Temporal Planning", in Intl. Conf. on Automated Planning and Scheduling, Nancy (France). June 2020.

Y. Carreno, **È. Pairet**, Y. Petillot, and R. Petrick. "Task Allocation Strategy for Heterogeneous Robot Teams in Offshore Missions", in Intl. Conf. on Autonomous Agents and Multiagent Systems, Auckland (New Zeland). May 2020.

D. Robb, M. Ahmad, C. Tiseo, S. Aracri, A. C. McConnell, V. Page, C. Dondrup, F. Garcia, H. Nguyen, **È. Pairet**, P. Ardón, T. Semwal, H. Taylor, L. Wilson, D. Lane, H. Hastie, and K. Lohan. "Robots in the Danger Zone: Exploring Public Perception through Engagement", in ACM/IEEE Intl. Conf. on Human-Robot Interaction, Boulder (US). March 2020.

K. Lohan, M. Ahmad, C. Dondrup, P. Ardón, **È. Pairet**, and A. Vinciarelli. "Adapting Movements and Behaviour to Favour Communication in Human-Robot Interaction", in Modelling Human Motion. Springer Book. January 2020.

È. Pairet, P. Ardón, M. Mistry, and Y. Petillot. "Learning Generalisable Coupling Terms for Obstacle Avoidance via Low-dimensional Geometric Descriptors", in IEEE/RSJ Intl. Conf. on Intelligent Robots and Systems and IEEE Robotics and Automation Letters, Macau (China). November 2019. https://youtu.be/lym5cCbjI3k

P. Ardón, **È. Pairet**, R. Petrick, S. Ramamoorthy, and K. S. Lohan. "Learning Grasp Affordance Reasoning through Semantic Relations", in IEEE/RSJ Intl. Conf. on Intelligent Robots and Systems and IEEE Robotics and Automation Letters, Macau (China). November 2019. https://youtu.be/aaA3NA-S5KY

È. Pairet, P. Ardón, M. Mistry, and Y. Petillot. "Learning and Composing Primitive Skills for Dual-arm Manipulation", in Annual Conf. Towards Autonomous Robotic Systems, London (UK). July 2019. *Advanced Robotics at Queen Mary (ARQ) best paper award.*

P. Ardón, **È. Pairet**, R. Petrick, S. Ramamoorthy, and K. S. Lohan. "Reasoning on Grasp-Action Affordances", in Annual Conf. Towards Autonomous Robotic Systems, London (UK). July 2019. *Best paper award finalist.*

È. Pairet, P. Ardón, X. Liu, H. Hastie, and K. S. Lohan. "A Digital Twin for Human-Robot Interaction," in ACM/IEEE Intl. Conf. on Human-Robot Interaction, Daegu (Korea). March 2019. https://youtu.be/ev1I1n3hZdg

È. Pairet, P. Ardón, F. Broz, M. Mistry, and Y. Petillot. "Learning and Generalisation of Primitives Skills Towards Robust Dual-arm Manipulation," in AAAI FSS, Reasoning and Learning in Real-World Systems for Long-Term Autonomy, Arlington (US). October 2018.

P. Ardón, **È. Pairet**, S. Ramamoorthy, and K. S. Lohan. "Towards Robust Grasps, Using the Environment Semantics for Robotic Object Affordances," in AAAI FSS, Reasoning and Learning in Real-World Systems for Long-Term Autonomy, Arlington (US). October 2018.

È. Pairet, J. D. Hernández, M. Lahijanian, and M. Carreras. "Uncertainty-based Online Mapping and Motion Planning for Marine Robotics Guidance," in IEEE/RSJ Intl. Conf. on Intelligent Robots and Systems, Madrid (Spain). October 2018. https://youtu.be/dTejsNqNC00

È. Pairet. "Learning and Generalisation of Primitive Skills for Robust Dual-arm Manipulation," University of Edinburgh and Heriot-Watt University, MSc thesis, University of Edinburgh and Heriot-Watt University. August 2018.

È. Pairet. "Uncertainty-based Online Mapping and Motion Planning for Marine Robotics Guidance". MSc thesis, University of Girona and University of Oxford. June 2017. <u>Selected presentation as best Master thesis award finalist.</u>

M. Carreras, C. Candela, D. Ribas, N. Palomeras, Ll. Magí, A. Mallios, E. Vidal, **È. Pairet**, and P. Ridao. "Testing SPARUS II AUV, an open platform for industrial, scientific and academic applications", in Intl. Workshop in Marine Technology, Cartagena (Spain). October 2015.

È. Pairet, and M. Carreras. "Integration of Fins to the SPARUS II AUV for its Control in Five DOFs". BSc thesis, University of Girona. September 2015. https://youtu.be/tXjAhasd4cA

J. D. Hernández, E. Vidal, G. Vallicrosa, **È. Pairet** and M. Carreras. "Simultaneous Mapping and Planning for Autonomous Underwater Vehicles in Unknown Environments", in MTS/IEEE OCEANS, Gènova (Italy). May 2015. https://youtu.be/A5-8LTBxbHQ

J. D. Hernández, G. Vallicrosa, E. Vidal, **È. Pairet**, M. Carreras and P. Ridao. "On-line 3D Path Planning for Close-proximity Surveying with AUVs", in IFAC Workshop on Navigation, Guidance and Control of Underwater Vehicles, Girona (Spain). April 2015.

È. Pairet, M. Simón, and J. Daunis-I-Estadella. "Statistics". Book of 303 pages including teaching material for the statistics courses in engineering at the University of Girona. Written in Catalan. September 2014.