Pr. Séverin Lemaignan

Social Robotics and AI

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37 years old

Scientific Focus: **Robot cognition and decision making for safe social interactions**: data-driven understanding of social interactions; explainable AI; ethics of safe human-robot interactions; robust human-robot multi-modal interaction; symbolic and sub-symbolic knowledge representation.

Keywords: **Social Robotics**, **Robotic Cognition**, **Responsible Human-Robot Interaction**, **Cognitive Architectures**

Education & Research Activities

2019– **Associate Professor in Social Robotics and AI**, *Bristol Robotics Lab, United Kingdom*.
Supervision of the Human-Robot Interaction research group; Supervision of the Driverless Vehicle research group.
Directly managing 20+ students and early career researchers.

2018–2019 **Senior Research Fellow in Robotics and Artificial Intelligence**, *Bristol Robotics Lab, United Kingdom*.

2017–2018 **Lecturer in Robotics**, *Plymouth University, Plymouth, United Kingdom*.

2015–2017 **EU Marie Skłodowska-Curie Post-doctoral fellow**, *Centre for Neural Systems and Robotics, Plymouth University, Plymouth, United Kingdom*.
Development and Implementation of a Theory of Mind for robots.

2013–2015 **Post-doctoral fellow**, *CHILI, EPFL, Lausanne, Switzerland*.
Interaction with Robots in Learning Environments – Supervision of the robotic group.

2012–2013 **Post-doctoral fellow**, *LAAS-CNRS, Toulouse, France*.
Spatial and Temporal Reasoning for Cognitive Robotic Architectures.

2008–2012 **Joint German-French PhD in Cognitive Robotics**, *LAAS-CNRS, Toulouse, France / Technical University of Munich, Germany*.
with High Distinction "Summa Cum Laude" – awarded CNRS' **Best PhD in Robotics 2012**
Supervisors: Pr. Rachid Alami, CNRS; Pr. Michael Beetz, TUM.

2006–2007 **Research Engineer**, *INRIA, Paris, France*.
Development of semantic-aware control architectures for autonomous vehicles.

2002–2006 **Joint German-French MSc of Engineering**, *Karlsruhe Institute of Technology / ENSAM ParisTech*.

2004–2005 **MSc Artificial Intelligence for Learning Technologies**, *University Paris V, College of Mathematics and Computer Sciences*, With Honours.

Scientific Impact & Dissemination Activities

Active figure of the Intelligent Robots community, *invited to high-profile editorial roles*.

As of Dec 2020, 70+ publications, *2700+ citations, h-index = 26, i10-index = 43* .

Recent International expert & advisory roles

2017– **EU H2020 member on the Peer Review College**.

2019– **Full member of the UK EPSRC College**.

2019– **Invited PhD committee examiner**, *6 times since 2019, in Sweden (Örebro, Uppsala, KTH), Germany (Bielefeld), France (LAAS-CNRS), UK (Bristol Robotics Lab)*.

2019 **Invited Expert in Child-Robot Interaction**, *robot4SEN project, VTC, Hong Kong*.

2018– **Senior Scientific Adviser for South-West UK SMEs**, *EU H2020 SABRE project*.

Significant National & International Editorial roles

2018– **Associate Editor**, *Frontiers in Robotics and AI*.

2018– **Program Committee of major international conferences in AI and robotics**, *IROS'16–'18; IJCAI'17'18'20'21; HRI'16–'20; HAI'18; AAMAS'19; RSS'20*.

2017–2021 **Organisation of the IEEE/ACM HRI conference**, *alt.HRI chair '17, local chair '20, Student Design Competition chair '21*.

2019 **UK TAROS conference on Autonomous Robotic Systems**, *co-coordinator*.

Policy making

2020 – **Expert Collaborator for the European Joint Research Centre**, *contributing to the UNICEF Guidelines for Responsible Child-Robots Interactions*.

2019 **Invited panel by the EU Research Executive Agency**, *MSCA AI Cluster, sharing expertise in Human-Robot Interaction*.

2018–2020 **BRL strategic planning**, *involved in discussion about Intelligent Manufacturing; HRI systems; Assistive robotics with key UK policy makers, incl. BEIS Secretary of State Greg Clark; Minister of State for Universities, Science, Research and Innovation Chris Skidmore; West of England CA Tim Bowles*.

Recent International Keynotes and Invited Talks

- **Robots for Learning** – *invited speaker*, 2019
  Robot4SEN, Vocational Training Council, Kong Kong
- **From Big Data to Social Robotics** – *keynote*, 2019
  UK RAS conference, Loughborough, UK
- **Big Data and Social Robotics** – *invited speaker*, 2018
  LAAS-CNRS, Toulouse, France
- **Child-robot Social Interactions** – *invited speaker*, 2018
  IIT, Genoa, Italy
- **Theory of Mind and Joint-action** – *keynote*, 2018
  Robotics Science and System, Pittsburgh, USA
- **Immersive Technologies for Safe Driverless Vehicles** – *invited speaker*, 2018
  South West Creative Technology Network, Bristol, UK
- **Human-Robot interaction in the context of safe driverless vehicles** – *invited speaker*, 2018
  HRI Symposium, Stanford University, Stanford, USA
- **Robots for Learning** – *keynote*, 2018
  Symposium on Robots for Language Learning, Koç University, Istanbul, Turkey

Awards and Honours

HRI'2017 **Best Paper Award 'Design'**.

HRI'2016 **Best Paper Award 'Methods and Theory'**.

AAAI'2015 **Best Video Award in Artificial Intelligence**.

AAAI'2014 **Best Late Breaking Report Award**.

2012 **Best PhD in Robotics**, *CNRS*.

2012 **PhD with High Distinction**, *("Summa Cum Laude"), TU Munich*.

Ro-Man'2010 **Best Paper Award**.

Selected Recent Publications

As of Dec 2020, 70+ publications, 2700+ citations, h-index = 26, i10-index = 43 *(Google Scholar)*.
→ *Link to complete list of publications, workshops and seminars*.

- Senft, E., Lemaignan, S., Baxter, P., Bartlett, M., Belpaeme, T. **Teaching robots social autonomy from in situ human guidance** *Science Robotics* 2019.
- Sallami, Y., Lemaignan, S., Clodic, A., Alami, R. **Simulation-based physics reasoning for consistent scene estimation in an HRI context** *IEEE IROS* 2019.
- Wallbridge, C., Lemaignan, S., Senft, E., Belpaeme, T. **Generating Spatial Referring Expressions in a Social Robot: Dynamic vs Non-Ambiguous** *Frontiers in AI and Robotics* 2019.
- Winkle, K., Lemaignan, S., Caleb-Solly, P., Leonards, U., Turton, A., Bremner, P. **Effective Persuasion Strategies for Socially Assistive Robots** *ACM/IEEE HRI* 2019.
- Bartlett, M., Edmunds, C. E. R., Belpaeme, T., Thill, S., Lemaignan, S. **What Can You See? Identifying Cues on Internal States from the Kinematics of Social Interactions** *Frontiers in AI and Robotics* 2019.
- Lemaignan, S., Edmunds E. R., C., Senft, E., Belpaeme, T. **The PInSoRo dataset: Supporting the data-driven study of child-child and child-robot social dynamics** *PLOS ONE* 2018.

- Senft, E., Baxter, P., Kennedy, J., Lemaignan, S., Belpaeme, T. **Supervised Autonomy for Online Learning in Human-Robot Interaction** *Pattern Recognition Letters* 2017.
- Lemaignan, S., Warnier, M., Sisbot, E.A., Clodic, A., Alami, R. **Artificial Cognition for Social Human-Robot Interaction: An Implementation** *Artificial Intelligence* 2017.

Selected Fellowships & Grants

2020–2021 **University of the West of England**, *Robots4SEN: Social Robots to Support Children with Autism*, Principal Investigator, £25K.

2019–2022 **InnovateUK**, *CAV Forth – Verification for Connected Autonomous Vehicles*, Co-Investigator, £600K.

2015–2017 **EU H2020 Marie Skłodowska-Curie Individual Fellowship**, Principal Investigator, € 195K.

Supervision & Teaching Experience

Students supervision, Supervised 9 PhD and 20+ MSc students to date, (click here for full list).

- N. Webb (PhD, 2019-): *Data-Driven Human Robot Interaction*
- M. Bartlett (PhD, 2017-): *Data-Driven Social Robotics*
- K. Winkle (PhD, 2016-2020): *Persuasive human-robot interactions*
- C. Wallbridge (PhD, 2016-2019): *Spatial reasoning for Child-Robot Interaction*
- E. Senft (PhD, 2015-2018): *Shared autonomy for social human-robot interactions*
- A. Jacq (PhD, 2014-2017): *Mutual modeling and repair strategies in HRI*
- A. Özgür (PhD, 2014-2017): *Cellulo: haptic robotics for learning*
- S. Chandra (PhD, 2013-2017): *CoWriter project: learning by teaching handwriting to a robot*
- J. Fink (PhD, 2011-2014): *Long-term acceptance of robots in daily life & anthropomorphism*

2018– **University of the West of England**, *associate professor*.
teaching at MSc level; Human-Robot Interaction, data science, software engineering for robotics, ROS

2016–2018 **Plymouth University**, *lecturer*.
teaching at BSc & MSc level robotics, including HRI, ROS, Kalman filtering, localisation and planning, control architectures

2018–2016 **Guest lectures & Seminars**, *Plymouth University, EPFL, Université de Toulouse*.
ROS, simulation, ontologies, Python/C++ software engineering, computer graphics & 3D modelling.

2008–2011 **Teaching assistant**, *INSA Toulouse, Écoles des Mines de Paris*.
Prolog, Ontology Modeling, Java, ADA, SQL, Mechatronics.

Selected outreach activities

2019– **Cluster Lead for STEM outreach**, *University of the West of England*.

2019– **Scientific advisor for the WeTheCurious Bristol's science museum**, *Open City Lab project*.

2016– **UK & EU Robotics Weeks coordinator**, *University of Plymouth, University of the West of England*.

2011 **'Roboscopie' Human-Robot public theater performance**, *Science Day'11*.
`http://bit.ly/1LQpNWA`

2008–2011 **Toulouse's Cognitive Sciences Students Association**, *Co-chair*.

2008–2009 **South African SciFest festival**, *Science facilitator*.

1997–2012 **Executive Committee & Head of Educational Robotics, Planète Sciences**, *including coordination of the EU-ROBOT Robotic Competition* .

Technical Skills and Spoken Languages

Robotics
- Expert in cognitive robotics and human-robot interaction
- ROS, Symbolic knowledge manipulation expert
- Expert PR2, Pepper, Nao developer
- Contributor to ROS, OpenCV
- Lead dev. MORSE simulator

Programming
- Python, modern C++, Prolog, SmallTalk
- Deep-learning frameworks: pytorch, TensorFlow
- Open-source enthusiast
  GitHub: `github.com/severin-lemaignan`

Languages

French Native

English Fluent

German Advanced