Séverin Lemaignan

Senior Scientist
Social Modelling and AI for Robots

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41 years old

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

Keywords: **Data-driven social modelling**, **Social Robotics**, **Artificial cognition**, **Responsible Human-Robot Interaction**

Education & Research Activities

2021– **Senior Scientist in Social Robotics and AI**, *PAL Robotics, Spain*
Research team leader, overseeing the development of Social Robots and autonomous Human-Robot Interactions capabilities.

2019–2021 **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*
Embodied AI for Education – Supervision of the Robotics 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

Selected Fellowships & PI/Co-I Roles

Selected fellowships

2021–2023 **Horizon Europe / ACCÍO TecnioSpring Technology Transfer fellowship**,
Principal Investigator, € 400K

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

Selected grants with PI/Co-I role

2024–2027 **Horizon Europe**, *ARISE* , Technical coordinator

2022–2026 **Horizon Europe (DN)**, *TRAIL* , Supervisor

2022–2026 **Horizon Europe**, *CoreSense*, Technical coordinator

2020–2024 **Horizon Europe**, *SPRING* , Technical coordinator

2021–2024 **Horizon Europe (DN)**, *PERSEO* , Supervisor

2019–2023 **Horizon Europe**, *SHAPES* , Principal Investigator (technical coordinator)

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

Scientific Impact & Dissemination Activities

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

As of Jan 2024, 100+ publications, *4600+ citations, h-index = 34, i10-index = 64*

Recent International expert & advisory roles

2023 **Invited to co-author the upcoming Responsible Robotics roadmap; Dagsthul seminar**

2020–2024 **Invited member of the International HRI Steering Committee**

2021–2022 **Expert on Ethics of Child-Robot Interaction; EU JRC/UNICEF**

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

2019–21 **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*

Significant National & International Editorial roles

2025 **General Chair of the IEEE/ACM Human-Robot Interaction Conference 2025**

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–'24; HAI'18; AAMAS'19; RSS'20*

2017–2024 **Organisation of the IEEE/ACM HRI conference**, *alt.HRI chair '17, local chair '20, Student Design Competition chair '21, Publication chair '24*

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

- **End-to-end Participatory Design** – *keynote*, 2023
  NAVERlabs HRI Symposium, Grenoble
- **Cognitive Architectures for Social Robots** – *keynote*, 2023
  HRI Symposium, Tel-Aviv
- **ROS4HRI** – *keynote*, 2022
  ROSCon'22, Kyoto
- **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 workshop, Pittsburgh, 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**

Supervision & Teaching Experience

Students supervision, Supervised 13 PhD and 20+ MSc students to date, (click here for full list)

- F. Gebelli (PhD, 2023-): ***Explanability for Social Robots***
- L. Ferrini (PhD, 2021-): ***Social Learning for Interactive Robots***
- L. Lach (PhD, 2021–2023): ***Tactile Manipulation for Robots***
- Y. Mohamed (PhD, 2021-): ***Data-Driven Human State Assessment***
- 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 EUROBOT Robotic Competition*

Technical Skills and Spoken Languages

Programming
- Expert C++, Python, Java, Prolog, SmallTalk
- Machine learning: RL, Transformers
- Deep-learning frameworks: pytorch, TensorFlow, ONNX
- CUDA programming
- Data analysis and statistics: scipy, pandas, numpy
- Knowledge representation: RDF, OWL, SPARQL
- Open-source enthusiast
  GitHub: `github.com/severin-lemaignan`

Robotics
- Expert in cognitive robotics and human-robot interaction
- ROS 1/ROS 2
- Expert TIAGo, TIAGoPro, ARI, PR2, Pepper, Nao developer
- Contributor to ROS, OpenCV
- Lead dev. MORSE simulator

Languages

French Native
English Fluent (C2)

Spanish Advanced (B2)
German Advanced (B1)

Selected publications

As of Jan 2024, 100+ publications, 4600+ citations, h-index = 34, i10-index = 64 *(Google Scholar)*.
→ *Link to complete list of publications, workshops and seminars*.

Selected International peer-reviewed journals

- Lemaignan, S., Newbutt, N., Rice, L., Daly, J.,
  "It's Important to Think of Pepper as a Teaching Aid or Resource External to the Classroom": A Social Robot in a School for Autistic Children,
  International Journal of Social Robotics 2022. DOI: 10.1007/s12369-022-00928-4.
- Winkle, K., Senft E., Lemaignan, S.,
  LEADOR: A Method for End-To-End Participatory Design of Autonomous Social Robots,
  FrontiersIn AI and Robotics 2021. DOI: 10.3389/frobt.2021.704119.
- Wallbridge, C., Smith, A., Giuliani, M., Melhuish, C., Belpaeme, T., Lemaignan, S.,
  The Effectiveness of Dynamically Processed Incremental Descriptions in Human Robot Interaction,
  ACM Transactions on Human-Robot Interaction 2021. DOI: 10.1145/3481628.
- Wallbridge, C., Lemaignan, S., Senft, E., Belpaeme, T.,
  Generating Spatial Referring Expressions in a Social Robot: Dynamic vs Non-Ambiguous,
  FrontiersIn AI and Robotics 2019. DOI: 10.3389/frobt.2019.00067.
- 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 Natural Social Interactions,
  FrontiersIn AI and Robotics 2019. DOI: 10.3389/frobt.2019.00049.
- 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. DOI: 10.1371/journal.pone.0205999.
- Senft, E., Baxter, P., Kennedy, J., Lemaignan, S., Belpaeme, T.,
  Supervised Autonomy for Online Learning in Human-Robot Interaction,
  Pattern Recognition Letters 2017. DOI: 10.1016/j.patrec.2017.03.015.
- Lemaignan, S., Warnier, M., Sisbot, E.A., Clodic, A., Alami, R.,
  Artificial Cognition for Social Human-Robot Interaction: An Implementation,
  Artificial Intelligence 2017. DOI: 10.1016/j.artint.2016.07.002.
- Lemaignan, S., Jacq, A., Hood, D., Garcia, F., Paiva, A., Dillenbourg, P.,
  Learning by Teaching a Robot: The Case of Handwriting,
  IEEE Robotics and Automation Magazine 2016. DOI: 10.1109/MRA.2016.2546700.
- Dillenbourg, P., Lemaignan, S., Sangin, M., Nova, N., Molinari, G.,
  The Symmetry of Partner Modelling,
  Intl. J. of Computer-Supported Collaborative Learning 2016. DOI: 10.1007/s11412-016-9235-5.

Selected International peer-reviewed conference articles

- Cooper, S., Ros, R., Lemaignan, S.,
  Challenges of deploying assistive robots in real-life scenarios: an industrial perspective,
  RoMAN 2023. DOI: 10.1109/RO-MAN57019.2023.10309467.
- Webb, N., Giuliani, M., Lemaignan, S.,
  SoGrIn: a non-verbal dataset of social group-level interactions,
  RoMAN 2023. DOI: 10.1109/RO-MAN57019.2023.10309351.
- Alhafnawi, M., Hunt, E. R., Lemaignan, S., O'Dowd, P., Hauert, S.,
  Deliberative Democracy with Robot Swarms,
  IROS 2022. DOI: 10.1109/IROS47612.2022.9981649.
- Webb, N., Giuliani, M., Lemaignan, S.,
  Measuring Visual Social Engagement from Proxemics and Gaze,
  RoMAN 2022. DOI: 10.1109/RO-MAN53752.2022.9900801.
- Mohamed, Y., Ballardini, G., Parreira, M. T., Lemaignan, S., Leite, I.,
  Automatic Frustration Detection Using Thermal Imaging,
  HRI 2022. DOI: 10.5555/3523760.3523821.

- Mohamed, Y., Lemaignan, S.,
  ROS for Human-Robot Interaction,
  IROS 2021. DOI: 10.1109/IROS51168.2021.9636816.
- Wijnen, L., Bremner, P., Lemaignan, S., Giuliani, M.,
  Performing Human-Robot Interaction User Studies in Virtual Reality,
  RoMAN 2020. DOI: 10.1109/RO-MAN47096.2020.9223521.
- Winkle, K., Lemaignan, S., Caleb-Solly, P., Leonards, U., Turton, A., Bremner, P.,
  In-Situ Learning from a Domain Expert for Real World Socially Assistive Robot Deployment,
  RSS 2020. DOI: 10.15607/RSS.2020.XVI.059.
- Winkle, K., Lemaignan, S., Caleb-Solly, P., Leonards, U., Turton, A., Bremner, P.,
  Effective Persuasion Strategies for Socially Assistive Robots,
  HRI 2019. DOI: 10.1109/HRI.2019.8673313.
- Wallbridge, C., van den Berghe, R., Hernández García, D., Kanero, J., Lemaignan, S., Edmunds, C., Belpaeme, T.,
  Using a Robot Peer to Encourage the Production of Spatial Concepts in a Second Language,
  HAI 2018. DOI: 10.1145/3284432.3284433.
- Irfan, B., Kennedy, J., Lemaignan, S., Papadopoulos, F., Senft, E., Belpaeme, T.,
  Social psychology and Human-Robot Interaction: an Uneasy Marriage,
  alt.HRI 2018. DOI: 10.1145/3173386.3173389.
- Senft, E., Lemaignan, S., Baxter, P., Belpaeme, T.,
  Toward Supervised Reinforcement Learning with Partial States for Social HRI,
  AAAI Fall Symposium – AI-HRI 2017.
- Chandra, S., Alves-Oliveira, P., Lemaignan, S., Sequeira, P., Paiva, A., Dillenbourg, P.,
  Children's Peer Assessment and Self-disclosure in the Presence of an Educational Robot,
  RoMAN 2016. DOI: 10.1109/ROMAN.2016.7745170.
- Baxter, P., Kennedy, J., Senft E., Lemaignan, S., Belpaeme, T.,
  From Characterising Three Years of HRI to Methodology and Reporting Recommendations,
  alt.HRI 2016. DOI: 10.1109/HRI.2016.7451777.
- Karim, M. E., Lemaignan, S., Mondada, F.,
  A Review: Can Robots Reshape K-12 STEM Education?,
  ARSO 2015. DOI: 10.1109/ARSO.2015.7428217.
- Lemaignan, S., Dillenbourg, P.,
  Mutual Modelling in Robotics: Inspirations for the Next Steps,
  HRI 2015. DOI: 10.1145/2696454.2696493.
- Hood, D., Lemaignan, S., Dillenbourg, P.,
  When Children Teach a Robot to Write: An Autonomous Teachable Humanoid Which Uses Simulated Handwriting,
  HRI 2015. DOI: 10.1145/2696454.2696479.
- Lemaignan, S., Hanheide, M., Karg, M., Khambhaita, H., Kunze, L., Lier, F., Lütkebohle, I., Milliez, G.,
  Simulation and HRI - Recent Perspectives with the MORSE Simulator,
  SIMPAR 2014. DOI: 10.1007/978-3-319-11900-7_2.
- Lemaignan, S., Fink, J., Dillenbourg, P., Braboszcz, C.,
  The Cognitive Correlates of Anthropomorphism,
  Workshop A bridge between Robotics and Neuroscience - HRI 2014.
- Lemaignan, S., Ros, R., Alami, R., Beetz, M.,
  What are you talking about? Grounding dialogue in a perspective-aware robotic architecture,
  RoMAN 2011. DOI: 10.1109/ROMAN.2011.6005249.
- Lemaignan, S., Ros, R., Mösenlechner, L., Alami, R., Beetz, M.,
  ORO, a Knowledge Management Module for Cognitive Architectures in Robotics,
  IROS 2010. DOI: 10.1109/IROS.2010.5649547.
- Ros, R., Lemaignan, S., Sisbot, E. A., Alami, R., Steinwender, J., Hamann, K., Warneken, F.,
  Which One? Grounding the Referent Based on Efficient Human-Robot Interaction,
  RoMAN 2010. DOI: 10.1109/ROMAN.2010.5598719.