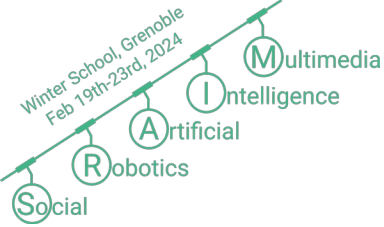


SoRAIM Winter School

Introduction & Demo

February 19th, 2024, Grenoble, France

Winter School, Grenoble
Feb 19th-23rd, 2024

Social Robotics Artificial Intelligence Multimedia

SoRAIM Winter School: Social Robotics, Artificial Intelligence and Multimedia

Discuss recent progress in building socially aware robots that communicate and interact with humans. Topics:

- Speech source localization and separation
- Mapping and visual self-localization
- Social-aware robot navigation
- Tracking and analysis of human behavior
- Dialog management, natural language understanding
- Robotic middle-ware and software integration
- Ethics and experimental design

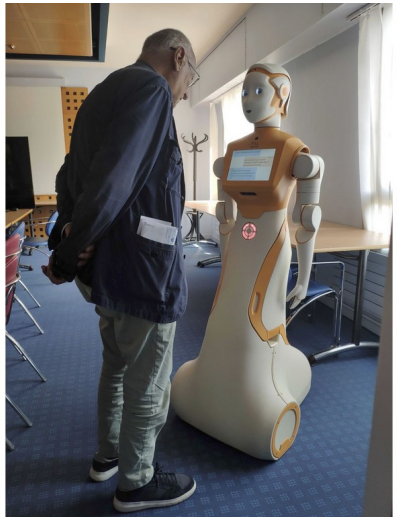
European Commission

SPRING

SoRAIM Context: The H2020 SPRING Project

Socially Pertinent Projects in Gerontological Healthcare

SPRING's overall objective: to develop **socially assistive robots** with the capacity of performing multi-person interactions and open-domain dialogue.



Strategic objective 1
Robust robot **perception** in complex, unstructured and populated environments

Strategic objective 2
Sensor-based robot **action** for multi-modal multiperson communication

Strategic objective 3
Validation of the technology based on the needs of gerontological healthcare

European Commission

SPRING

SoRAIM Context: The H2020 Project Socially Pertinent Projects in Gerontological Healthcare

Inria [Coordinator, FR] – Robot behavior, tracking
CVUT [CZ] – Self-localisation, object discovery
UNITN [IT] – Human and social behavior analysis
BIU [ISR] – Audio and speech processing
HWU [UK] – Dialogue and interaction management
ERM [FR] – Software integration and experimentation
PAL [ES] – Robot hardware and software architecture
AP-HP [FR] – Ethics protocols, experimentation

SoRAIM: What & How?

8 Plenary Sessions: Invited Speaker + SPRING Speaker

Panel discussion (Tuesday Afternoon)

Poster Session (Wednesday Afternoon)

Social Activity (Thursday Afternoon)

Hands-on session (Friday)

Plenary Sessions (I)

Plenary 01 – Autonomous robots: adaptation and soft. integration

Autonomous Robots in the Wild – Adapting from and for Interaction
Prof. Marc Hanheide, University of Lincoln

WP7: Robot customisation and Software Integration
Dr. Séverin Lemaignan, PAL Robotics

Plenary 02 – Experimental robotics: from results to policies

AI and Children's Rights: Lessons Learnt from the Implementation of the UNICEF Policy Guidance to Social Robots for Children
Dr. Vasiliki Charisi, JRC European Comission

WP1: Experimental Validation of the SPRING-ARI robotic platform
Cyril Liotard, ERM Automatismes Industriels

Plenary Sessions (II)

Plenary 03 – Ethics-ready robotics or robot-ready ethics?

Ethically Aligned Design for Social Robotics
Prof. Raja Chatila, Sorbonne Université

Opportunities & challenges in putting AI ethics in practice: the role of the EU
Dr. Mihalis Kritikos, Ethics and Integrity Sector of the EC

WP10: Ethics and robot acceptance in a day-care hospital
Prof. Anne-Sophie Rigaud, APHP

Plenary 04 – Audio-visual perception: the robo-centric case

Audio-Visual Speech Source Separation and Speaker Tracking
Prof. Wenwu Wang, University of Surrey

WP3: Robust Audio-visual Perception of Humans
Prof. Sharon Gannot, BIU

Plenary Sessions (III)

Plenary 05 – Multi-party conversational robots

Predictive modelling of turn-taking in human-robot interaction
Prof. Gabriel Skantze, KTH Stockholm

WP5: Multi-User Spoken Conversations with Robots
Dr. Daniel Hernandez Garcia, HWU

Plenary 06 – Social robot behavior policies

Human-Interactive Mobile Robots: from Learning to Deployment
Prof. Xuesu Xiao, George Mason University

WP6: Learning Robot Behaviour
Dr. Chris Reinke, INRIA

Plenary Sessions (IV)

Plenary 07 – Sensing the environments: from falls to self-localisation

Human-presence modeling and social navigation of an assistive robot solution for detection of falls and elderly's support
Prof. Antonios Gasteratos, Democritus University of Thrace

WP2: Environment Mapping, Self-localisation and Simulation
Dr. Michal Polic, CVUT

Plenary 08 – Understanding human behavior for wellbeing and robots

Robotic Coaches for Mental Wellbeing: From the Lab to the Real World
Prof. Hatice Gunes, University of Cambridge

WP4: Multi-Modal Human Behaviour Understanding
Dr. Lorenzo Vaquero Otal, UNITN

Winter School, Grenoble
Feb 19th-23rd, 2024
Multimedia Intelligence
Artificial Robotics
Social

Panel Session

Are social robots already out there?
Immediate challenges in real-world deployment

Prof. Raja Chatila

Dr. Mihalis Kritikos

Dr. Vasiliki Charisi

Prof. Anne-Sophie Rigaud

Cyril Liotard

Dr. Séverin Lemaignan

Poster Session

P#01: The Social Bench Tool to study Child-Robot Interaction (Francesca Cocchella, IIT/ U Genoa)
P#02: LLM in Social Robots: The Key to Open Unconstrained Human-Robot Conversations? (Maria Pinto, Ghent U)
P#03: Adaptive second language tutoring through generative AI and social robots (Eva Verhelst, Ghent U)
P#04: Design space model for Robots Supporting Trust of Children/Older Adults in Wellness (Chia-Hsin Wu, Tampere U)
P#05: Goes to the Heart: Speaking the User's Native Language (Shaul Ashkenazi, U Glasgow)
P#06: Co-designing Conversational Agents for the Elderly: A Comprehensive Review (Sidonie Salomé, UGA)
P#07: Improvement of real-world dialogue recognition and capabilities of social robots (Andrew Blair, U Glasgow)
P#08: I Was Blind but Now I See: Implementing Vision-Enabled Dialogue in Social Robots (Giulio Antonio Abbo, Ghent U)
P#09: Sound Source Localization and Tracking in Complex Acoustic Scenes (Taous Iatariene, U Lorraine)
P#10: A prob. approach for learning/adapting shared control skills with the human in the loop (Gabriel Quere, DLR, IP Paris)
P#11: Musical Robot for People with Dementia (Paul Raingeard de la Bletiere, TU Delft)
P#12: Univariate RBF Layers: Brain-inspired Deep Neural Layers for Low-Dimensional Inputs (Daniel Jost, INRIA)
P#13: Mixture of Dynamical VAEs for Multi-Source Trajectory Modeling and Separation (Xiaoyu Lin, INRIA)
P#14: Preference-Based Reinforcement Learning for Social Robotics (Anand Ballou, INRIA)
P#15: Speech Modeling with a Hierarchical Transformer Dynamical VAE (Xiaoyu Lin, INRIA)

Social Program

Visit #1: Historic Grenoble
Thursday, 2pm – 3.30pm
Start: Grenoble's Touris Office

Visit #2: Climb to Bastille & Alps Panorama
Thursday, 3.30pm – 5pm
Grenoble-Bastille cable car (bottom station)

All information + registration links in the booklet!

Hands-on Sessions

Friday, 11am-12.30pm & 2.30pm-4pm

Learn from the experience of 5 teams on different topics (info @ booklet):

- a navigation simulation (lead: INRIA)
- a use case of the people identifier/manager (lead: PAL Robotics)
- a prompt engineering building conversational system with LLM (lead: HWU)
- a localisation trial (lead: CVUT)
- a speaker extraction use case (lead: BIU)





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Thanks!
Sponsors

H2020 SPRING Project & European Commission

ACM Special Interest Group on Multimedia

Mutidisciplinary Institute of Artificial Intelligence

Univ. Grenoble Alpes

Inria @ UGA – Young Researchers Mission

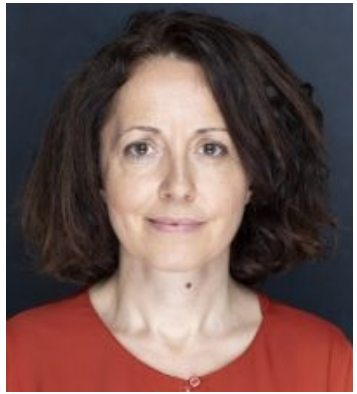
Thanks!
Invited Speakers











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Thanks!
SPRING Speakers








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Thanks!
Organising Committee

All Inria, UGA and SPRING people that helped. In particular:


Alex


Victor


Nicolas


Kirubakaran


Matthieu


Nathalie

Time for demo!!!