DARIO PASQUALI

Postdoc Fellow @ Istituto Italiano di Tecnologia

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EXPERIENCE

Postdoctoral Fellow - IIT

COgNitive Architecture for Collaborative Technologies

Feb 2022 – Present Genova, Italy

Proactive Memory iN AI for Development

- Enable a rover robot from Robotnik to support humans in a industrial workplace. The robot navigates in the environment with context awareness and functional memory, learning and adapting to its humans fellows.

PhD Candidate - IIT

RBCS and ICT Departments

Nov 2018 – Present Genova, Italy

Cyber Security and Social Engineering in Human-Robot Interaction.

- Real-time evaluation of physiological metrics to predict the compliance with Social Engineering attacks in human-robot interaction with Machine Learning models.

Big Data Engineer

Data Reply

Oct 2017 - Nov 2018 Milan and Bologna, Italy

- Full-stack development of Scala and Python applications, based on Spark and Cloudera, for Big Data processing in the vehicle insurance field.

TECHNICAL SKILLS

- Python, C++, Scala, Java, C#, C, Prolog.
- Keras, Tensorflow, OpenCV, YARP, Cloudera CDH, Spark, Ansible, Jenkins

PERSONAL SKILLS

- Team-working and passion toward mentoring and leadership
- Extremely curious and always eager to acquire more knowledge
- Initiative-taker in problem solving and used to lateral thinking

ACHIEVEMENTS

- Successfully planning my wedding and leading the renovation of my future house, while doing a PhD in a different city, during the pandemic.

HOBBIES

- Miniature painting, Beer homebrewing, Cooking

EDUCATION

Master of Computer Engineering

University of Bologna – Italy

Mar 2018

Final Degree: 110/110 *summa cum laude*

Bachelor of Computer Engineering

University of Bologna – Italy

Dec 2015

Final Degree: 101/110

PROJECTS

Social Engineering Adventure (SEA)

- Python textual adventure to challenge players against Social Engineering threats. Real-time control of the humanoid robot iCub (in C++). Multi-modal acquisition and processing of physiological data from an Eyelink 1000, a Tobii Pro Glasses 2 and a Shimmer3 GSR+, used to predict humans' compliance.

Adventurer Robot Companion (ARC)

- Evolution of the SEA project developed during a Visiting Research period at the University of Waterloo (Canada). Exploration of different intervention strategies to prevent humans' compliance using the Furhat robot.

Lie Detection in HRI

- Machine Learning model to autonomously detect lies based on a real-time pupillometry-based cognitive load evaluation. Implemented on the humanoid robot iCub. Multiple interactions with the same partner improve the model's performance.

Unreliable Treasure Hunt

- On-the-wild human-robot interaction to analyse the building and evolution of trust between a human and a robot. Participants have to find 6 eggs hidden in a room, asking hints to iCub which eventually show technical failures.

Endless Upgrade

- Master's Degree dissertation project @ Data Reply. I used DevOps principles and tools (Ansible, Terraform, Jenkins) to fully automatise the development and deployment process of a movie recommendation service in a Big Data ecosystem.

PUBLICATIONS

Journal Articles

- Alexander, Aroyo M. et al. (July 2021). “Expectations Vs. Reality: Unreliability and Transparency in a Treasure Hunt Game with iCub”. In: *IEEE Robot. Autom. Lett.* 6.3, pp. 5681–5688. ISSN: 23773766. DOI: 10.1109/LRA.2021.3083465.
- Dario, Pasquali, Gonzalez-Billandon Jonas, Aroyo Mois Alexander, et al. (Nov. 2021). “Detecting Lies is a Child (Robot)’s Play: Gaze-Based Lie Detection in HRI”. in: *Int. J. Soc. Robot. 2021*, pp. 1–16. ISSN: 1875-4805. DOI: 10.1007/S12369-021-00822-5.
- Jonas, Gonzalez-Billandon et al. (July 2019). “Can a Robot Catch You Lying? A Machine Learning System to Detect Lies During Interactions”. In: *Frontiers in Robotics and AI* 6, p. 64. ISSN: 2296-9144. DOI: 10.3389/frobt.2019.00064.

Conference Proceedings

- Dario, Pasquali, Gaggero Davide, et al. (Nov. 2021). “Human vs Robot Lie Detector: Better Working as a Team?” In: Springer, Cham, pp. 154–165. DOI: \newline10.1007/978-3-030-90525-5_14.
- Dario, Pasquali, Gonzalez-Billandon Jonas, Rea Francesco, et al. (Mar. 2021). “Magic iCub: A humanoid robot autonomously catching your lies in a card game”. In: *ACM/IEEE Int. Conf. Human-Robot Interact.* IEEE Computer Society, pp. 293–302. ISBN: 9781450382892. DOI: 10.1145/3434073.3444682.
- Alexander, Aroyo M. et al. (2020). “Perceived differences between on-line and real robotic failures”. In: *RO-MAN 2020 - Trust. Accept. Soc. Cues Human-Robot Interact. - SCRITA*.
- Dario, Pasquali, Aroyo Mois Alexander, et al. (Mar. 2020). “Your eyes never lie: A robot magician can tell if you are lying”. In: IEEE Computer Society, pp. 392–394. ISBN: 9781450370578. DOI: 10.1145/3371382.3378253.
- Dario, Pasquali, M. Aroyo Alexander, et al. (Mar. 2020). “Do You See the Magic? An Autonomous Robot Magician Can Read Your Mind”. In: *ACM/IEEE Int. Conf. Human-Robot Interact. Workshop on Creative Content on Social Robotics*.