Antonio Roberto

Applied Scientist

Applied Scientist currently pursuing a PhD in Computer Engineering and making research on Deep Learning algorithms for signal processing and conversation AI applied to social robotics.

WORK EXPERIENCE

Applied Scientist Internship Jun 2022 – Sep 2022
Amazon Alexa, Turin, IT

- Working as applied scientist for the development of Speech-to-Text deep learning algorithms.
- Data-driven model design based on large-scale databases.

Full-stack developer Jul 2017 – Dec 2018
Lojo s.r.l.s., Eboli, IT

- Development of the front-end and the back-end of cross-platform mobile applications for Android and iOS.

RESEARCH EXPERIENCE

Research collaboration Jul 2021 – Oct 2021
Ecole Nationale Superieure d'Ingenieurs de Caen, CAEN, FR

- IMAGE team of the GREYC laboratory
- Research project: "Speech analysis for Speaker Identification and Soft-Biometrics recognition based on Deep Learning methods".

Research grant Dec 2018 – Nov 2019
University of Salerno, Salerno, IT

- Research grant for the development of deep learning algorithms for Sound Event Detection.

Research collaboration Sep 2018 – Dec 2018
Rijksuniversiteit Groningen, CAEN, FR

- Erasmus period in collaboration with the Intelligent Systems research group on the topic "Financial time series forecasting".

EDUCATION

PhD in Computer Engineering Dec 2019 – Present
University of Salerno, Salerno, IT

- Research in AI for Audio and Speech Analysis, Conversational AI, Deep Learning optimization for Embedded Systems resulted in 6 publications on international journals and conferences.
- Realization of social robotics prototypes based on ROS (Robotic Operating System) deployed at 4 international exhibitions.

CONTACT

- Salerno, IT (Open to Remote)
- +39 3206772900
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- github.com/robertanto

SKILLS

Soft skills:
- Teamwork and Leadership
- Earn trust
- Curiosity
- Quick Learning

Techniques:
- Artificial Intelligence
- Deep Learning
- Optimization
- Software Engineering
- Conversational AI
- Speech Processing
- Natural Language Processing
- Bio-inspired Computation

Languages, Tools and Frameworks:
- Python, Java, C, MATLAB
- SQL
- Tensorflow, Keras, PyTorch
- ONNX, Tensor RT
- PyTorch Geometric, OpenCV
- HuggingFace
- Apache Spark
- NumPy, Scikit-Learn, Scipy
- Bash
- Docker

LANGUAGES

Italian - Native Speaker
English - B2 CEFR

OTHER

- Student representative
- Saxophonist in a Blues band
- Cultural Associationist

Master degree in Computer Engineering Oct 2016 – Dec 2018
University of Salerno, Salerno, IT - Grade 110/110 cum laude

- International thesis entitled "A method for forecasting financial time series based on empirical mode decomposition and manifold learning".

PUBLICATIONS

- Efficient Transformers for on-robot Natural Language Understanding. HUMANOIDS 2022. IEEE-RAS.
- DENet: a deep architecture for audio surveillance applications. Neural Computing and Applications, 1-12. 2021. Springer.
- Predicting Polypharmacy Side Effects Through a Relation-Wise Graph Attention Network. S+SSPR 2020. Springer.
- Which are the factors affecting the performance of audio surveillance systems?. ICPR 2020. IEEE.
- A deep convolutionary network for automatic detection of audio events. APPIS 2020.
- Emotion analysis from faces for social robotics. SMC 2019. IEEE.
- A Challenging Voice Dataset for Robotic Applications in Noisy Environments. CAIP 2019. Springer.

SELECTED PROJECTS

Social Robots application @ SICUREZZA 2021 2021
Milan, IT

- Design and development of a Social Robotic application for the Fiera Sicurezza exhibition using the Pepper robotic platform.
- Design and development of the Conversational AI stack (Spoken Language Understanding, Dialogue Management, SoftBiometrics Recognition, People Tracking) at edge on a NVIDIA Jetson Xavier NX embedded system
- Technologies and tools: ROS, Linux, CUDA, Pytorch, Tensorflow, OpenCV, ONNX and TensorRT

Facial emotion recognition (Team of 3 people) 2018
Salerno, IT

- University Competition. Worked in a team of 4 people to develop a Convolutional Neural Network for recognizing emotion from facial images.
- Technologies and tools: Tensorflow, Keras, and Python.

Autonomous driving with DuckieBot (Team of 4 people) 2018
Salerno, IT

- University Competition. Worked in a team of 4 people to develop Computer Vision pipelines on board a Raspberry Pi to drive the bot.
- Technologies and tools: OpenCV, Scikit-Learn, Python, and Linux.