Simone Antonelli

PERSONAL INFO

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RESEARCH EXPERIENCE

Master thesis development 2021 (Apr. - in progress)
GLADIA Research Group, Sapienza University of Rome
TITLE: *Model-Level Explanation of PointNet Framework via Input Optimization*

- Design and implementation of a novel 3D deep generative framework to reconstruct 3D point clouds via Adversarial Autoencoder;
- Explanation of a deep neural model dealing with 3D data (PointNet) through a post-hoc technique to visualize what the artificial neural network has learned.

Bachelor thesis development 2019 (Apr. - Dec.)
MCLab Research Group, Sapienza University of Rome
TITLE: *ModelsTranslator, a translating tool for biological models*

- Analysis, design and development of a translating tool for biological models in several modelling languages to encourage models re-use in the community;
- Test analysis and simulation of the translated models.

EDUCATION

MSc in Computer Science 2019 - 2021 (in progress)
Sapienza University of Rome *(GPA:* **29**, **2**/**30***)*
MAJOR TOPICS: Advanced Algorithms, Machine Learning, Deep Learning, Computer Vision and Natural Language Processing.

BSc in Computer Science 2016 - 2019
Sapienza University of Rome *(full marks with honors, GPA:* **27**, **2**/**30***)*
MAJOR TOPICS: Algorithms, Software Engineering and Artificial Intelligence.

PROJECTS

Few-Shot Object Detection via an Instance-aware branch 2021

- Design and implementation of a novel approach to detect objects from few examples;
- Co-authored a survey about the relevant methods tackling few-shot object detection (*submitted*).

Towards Conditionality in Probabilistic Diffusion Models 2021

- Refine probabilistic diffusion models for image generation, including class conditionality by adapting GANs techniques.

Learning of Independent Causal Mechanisms on 3D Shapes 2021

- Training of a framework to learn several models each focused in inverting a transformation on 3D point clouds by leveraging causality;
- Build 3D point cloud MNIST dataset.

ACKNOWLEDGMENTS

Honours Programme in Computer Science 2021 (in progress)
Sapienza University of Rome

- Extracurricular activity for worthy students giving those the opportunity to approach the research;
- I focused my honours programme in discovering causal mechanisms on non-Euclidean data;
- Supervised by professor Emanuele Rodolà.

SUMMER SCHOOLS

Pre-Doctoral Research School Aug. 2021
Cornell University, Maryland University, Max Planck Institute

Admitted as an outstanding student to (virtually) attend a week of lectures about cutting-edge research topics in Computer Science.

Machine Learning Summer School Aug. 2021
Max-Planck-Gesellschaft

Selected to (virtually) participate in the General Program of the MLSS where leading experts in Machine Learning discuss core topics of the field.

SKILLS

Programming	**Python**, C++, Java, LaTeX
Technologies	PyTorch, common Python ML libraries
Environments	Visual Studio Code, PyCharm, Google Colab