

# Simone Antonelli

## PERSONAL INFO

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**Name:** Simone Antonelli

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## RESEARCH EXPERIENCE

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**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

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**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

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

- Design and implementation of a novel approach to detect objects from few examples;

### 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

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### 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

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### 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

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*Programming*    **Python**, C++, Java,  $\text{\LaTeX}$

*Technologies*    PyTorch, common Python ML libraries

*Environments*    Visual Studio Code, PyCharm, Google Colab