**PUBBLICATO ALL'ALBO WEB IN DATA** 27.12.2022

# UNIVERSITA' DEGLI STUDI DI GENOVA

AREA INTERNAZIONALIZZAZIONE, RICERCA E TERZA MISSIONE
SERVIZIO RICERCA

D.R. n. 5736

IL RETTORE

- Visto il Decreto Rettorale n. 4848 del 09/11/2022, con il quale è stato indetto il concorso, per titoli e colloquio, per il conferimento di n. 1 borsa di ricerca post laurea di tipo *consolidator* della durata di 12 mesi, eventualmente rinnovabile, dell'importo di € 18.000,00 (diciottomila/00), per lo svolgimento di una ricerca sul tema: "Computer vision methods for the analysis of biomedical images", presso il DIBRIS dell'Università degli Studi di Genova;

- Visto il Decreto Rettorale n. 5422 del 07/12/2022 con il quale è stata costituita la Commissione giudicatrice per il conferimento della suddetta borsa di ricerca;

- Visto il verbale della Commissione giudicatrice del concorso in parola, riunitasi in data 15/12/2022;

- Constatata la regolarità della procedura seguita;

DECRETA

Art. 1

Sono approvati gli atti del concorso di cui in premessa e la seguente graduatoria di merito:

1. Dott.re Simone Testa punti 87/100

Sotto condizione dell'accertamento dei requisiti di cui al bando, è dichiarato vincitore del concorso in parola il Dott.re Simone Testa.

Genova, 27.12.2022

IL RETTORE

Firmato digitalmente da:
FEDERICO DELFINO
Università degli Studi di Genova
Firmato il: 22-12-2022 14:07:29
Seriale certificato: 818306
Valido dal 03-11-2020 al 03-11-2023

Responsabile del procedimento: Cristina Tubino
Area Internazionalizzazione, Ricerca e Terza Missione
Servizio Ricerca

europass

# Simone Testa

**Nationality :** [redacted]

*Biomedical engineer by training, with strong passion for computer science and technology. Broad interests include neuroscience, biological/artificial vision, machine learning and medical imaging. Motivation, organization and proactivity are my assets, blending a solution-oriented mindset gained from engineering education, with excellent communication skills from previous classical studies.*

## EDUCATION AND TRAINING

CURRENT - Genoa, Italy

### PhD candidate in Bioengineering and Robotics – University of Genoa

- Curriculum : Bioengineering.
- Research Field : Fixation drifts as a natural approach for effective space-time encoding of static scenes in neuromorphic vision sensing and computing. Advisor: Silvio P. Sabatini.
- Teaching Assistance : Frontal lessons and practical coding exercises (Jupyter Notebooks) for the master course *Neuromorphic Computing and Integrative Cognitive Systems*, LM-21, DIBRIS.

2021 - Genoa, Italy

### Professional qualification as IT Engineer – University of Genoa

- Description : Sustained and successfully passed the professional exam for the Italian qualification as an Information Technology engineer.

2019 - Zurich, Switzerland

### Visiting student at ETH and UZH – Institute of Neuroinformatics (ETH / UZH)

- Description : Working on my master's thesis project with cutting-edge neuromorphic technology (both sensors and processors) for the analysis of natural viewing strategy on perception of static environments.

2019 - Genoa, Italy

### Master's degree in Bioengineering (110/110 cum laude) – University of Genoa

- Curriculum : Neuroengineering and Bio-ICT.
- Final Thesis : *Active Vision System Based on Neuromorphic Technology*, conducted over 7 months at the Institute of Neuroinformatics (ETH/UZH). Advisors: Silvio P. Sabatini & Giacomo Indiveri (ETH).
- Awards : In June 2018 I won a merit-based scholarship for conducting a thesis project abroad, under the *Fondo Giovani* programme funded by the Italian Government (MIUR).

2016 - Rome, Italy

### Bachelor's degree in Biomedical Engineering (108/110) – La Sapienza University of Rome

- Final Thesis : *Physical Basis of Artifactual Images in Thoracic Ultrasonography*, research collaboration with Fondazione Toscana Gabriele Monasterio in Pisa. Advisors: Andrea Bettucci & Marcello Demi (FTGM).

2013 - Rome, Italy

### Classical diploma – Ugo Foscolo High School

- Related Activity : student-body president during the academic year 2012-2013.

## LANGUAGE SKILLS

Mother tongue(s) : **ITALIAN**

Other language(s) : **ENGLISH** (C2) **FRENCH** (B2) **SPANISH** (B1)

## DIGITAL SKILLS

Programming : Python | Matlab | C | C++ | Bash | LaTeX

ML/CV libraries : Open-CV | Numpy | Torch | TensorFlow | Scikit-Learn

Version Control : GitHub

## SOFT SKILLS (COMMUNICATION, ORGANIZATION, MANAGEMENT AND LEADERSHIP)

- Excellent organizational and leading skills : aptitude for planning and problem solving developed during high-school experience as student-body president and for co-advising multiple master thesis projects.
- Methodical, data-driven and solution-oriented mindset, typical of polytechnique education.
- Strong aptitude for team working earned from research collaborations and team sports.
- Emotional intelligence and ability in building and managing long-term relationships.
- Optimism, flexibility and sense of duty are my strengths.

## PROJECTS

- Image segmentation with a convolutional autoencoder for detection of cultivated lands in NDVI signals from Sentinel-2 geospatial data, achieving high (top-11) score at AI4EO challenge from ESA.
- Predicting the resolution time of an alert from the Apache-AVRO software-developer community by comparing the performance of different machine-learning models.
- Co-advisor of a master thesis project for comparing hand-crafted and learned primitive visual features from a spiking convolutional neural network exploiting spatio-temporal organization of events.
- Co-advisor of a master thesis project for optic flow estimation through a biologically-plausible spiking network model processing the event-based output of a neuromorphic camera.
- Co-advisor of a research project on event-based simultaneous localization and mapping (SLAM) in the ROS framework for an ultra low-power and smart wearable device.
- Development of a Python software toolkit for converting large computer-vision datasets to spatio-temporal event streams by simultaneous control of a neuromorphic camera and a pan-tilt unit.
- Teamwork program design for the individuation of brain microstates in EEG signals using unsupervised k-means clustering algorithm.
- Teamwork development of a practical Android app for the assessment of user's vision capability with state-of-the-art psychophysics methods.

## CONFERENCES AND SEMINARS SPEECHES

- Oral presentation at the 2020 IEEE International Symposium on Circuits and Systems (ISCAS 2020), October 2020, Online Event on Zoom.
- Poster presentation at the 15th International Conference on Computer Vision Theory and Applications (VISAPP 2020), February 2020, Valletta (Malta).
- Poster presentation at the 32th Symposium on Active Vision, May 2022, Rochester (NY, USA).

## CERTIFICATES

- *Machine Learning with Python* from IBM, Coursera MOOC Platform.
- *Deep Neural Networks with PyTorch* from IBM, Coursera MOOC Platform.
- *Building Deep Learning Models with TensorFlow* from IBM, Coursera MOOC Platform.
- *Computer Vision Crash Course* from MaLGa, University of Genoa.
- *Regularization Methods for Machine Learning* from MaLGa, University of Genoa.
- *International Summer School of Neuroengineering Massimo Grattarola* from DIBRIS, University of Genoa.
- *Applied Machine Learning Days* (AMLD) workshop from EPFL.
- *Advanced Course on Data Science and Machine Learning* (ACDL) summer school from University of Catania.

## PUBLICATIONS

- Testa S., Indiveri G. and Sabatini S.P., *A Bio-inspired Active Vision System Based on Fixational Eye Movements* (2020), in Proceedings of the 2020 IEEE International Symposium on Circuits and Systems (ISCAS), pp. 1-5.
- Testa S., Indiveri G. and Sabatini S.P, *Dynamic Detectors of Oriented Spatial Contrasts from Isotropic Fixational Eye Movements* (2020), in Proceedings of the 15th International Joint Conference on Computer Vision, Imaging and Computer Graphics Theory and Applications (VISIGRAPP), vol. 5 pp. 674-681.
- Peveri F., Testa S., Sabatini S.P., *A Cortically-Inspired Architecture for Event-based Visual Motion Processing: from Design Principles to Real-World Applications* (2021), in Proceedings of the 2021 IEEE/CVF Conference on Computer Vision and Pattern Recognition (CVPR), pp. 1395-1402.
- Testa S., Sabatini S.P., Canessa A., *Active Fixation as an Efficient Coding Strategy for Neuromorphic Vision*, **under review** at Scientific Reports.
- Testa S., Pastore V.P., Canessa A., Odone F., Sabatini S.P., *Neuromorphic Vision Benefits from Fixational Drifts: a Deep-Learning Approach for Evaluating Temporal Information*, **under review** at Neurocomputing.

## HONOURS AND AWARDS

- PhD scholarship for 39 months (from 11/2019 to 01/2023) funded by the Italian Government (MIUR).
- "Fondo Giovani" scholarship for 6 months (from 01/2019 to 06/2019) funded by the Italian Government (MIUR).