

Curriculum vitae

Guglielmo Camporese

(pron. gool-yell-moe)

last update: September, 2023

Personal

Birth Camposampiero (PD), Italy, on March 8th 1993. Italian citizen. Male.
Cur. Loc. Via Santa Caterina 4 Interno 1, 35121 Padova, Italy
Mobile +39 340 6738579
Email guglielmocamporese@gmail.com
Website guglielmocamporese.github.io
Linkedin linkedin.com/in/guglielmocamporese
GitHub github.com/guglielmocamporese
Twitter @gucamporese

Work Experience

04-07/2023 **Research Scientist Intern**

Disney Research Studios - Zürich, Switzerland

Worked on model optimization, transfer learning and knowledge distillation. Developed a new neural network activation that improves accuracy in different domains, such as implicit neural representation, super-resolution, and Monte Carlo denoising. Worked also on its efficient implementation in CUDA/C++ kernels for PyTorch and TensorFlow 2.

○ Paper accepted at NeurIPS 2023.

12/2021 - **Applied Scientist Intern**

09/2022 *Amazon Web Services AI Labs* - Seattle, Washington

Worked with the Rekognition team in a research project focused on video predictive understanding using deep learning models. In particular, I investigated and innovated how to anticipate and early-recognize events on videos before they occur.

○ Paper under submission.

06-09/2020 **Applied Scientist Intern**

Amazon Alexa AI - Turin, Italy

Worked in the Automatic Speech Recognition (ASR) team on enabling Alexa to recognizing speech affected by disfluencies and impairments (such as stuttering). During the project, I worked on the multi-lingual modeling of speech disorders, designing and training neural network for ASR, building and mining new relevant datasets, and delivering high-quality results.

○ Paper accepted at ICASSP 2021 [C2].

11/2018 - **Deep Learning and Computer Vision Engineer Intern**

10/2019 *Aquifi Inc.* - Palo Alto, California

Worked on the development of new deep learning systems for anomaly detection on multi-view structured input images and highly imbalanced datasets. Worked on the designing and training of models, datasets creation and filtration, and the evaluation in different settings. Used a variety of tools, including Python, TensorFlow 1.x, and C++, as well as bash, HTML, javascript, and CSS for experiment visualizations.

Education

- 10/2019 - **Ph.D. in Brain, Mind and Computer Science**
02/2023 *University of Padova, Department of Mathematics and Psychology* - Padova, Italy
Thesis: Prediction of Activities and Visual Concepts Under Complex and Changing Conditions
Supervisor: Lamberto Ballan - **Co-supervisor:** Gianluca Campana
- 2016 - 2019 **M.Sc. in Telecommunications Engineering, 110/110 e Lode**
University of Padova, Department of Information Engineering - Padova, Italy
Thesis: Semantic Segmentation for Visual Inspection
Supervisor: Pietro Zanuttigh
- 2012 - 2016 **B.Sc. in Information Engineering**
University of Padova, Department of Information Engineering - Padova, Italy
Thesis: Algorithms for Sound Synthesis through Physical Modeling
Supervisor: Federico Avanzini
- 2007 - 2012 **Scientific High School Diploma**
Liceo Scientifico "Ettore Majorana" - Mirano, Venezia, Italy

Academic Work Experience

- 12/2022 - **PostDoctoral Research Fellow**
02/2023 *University of Padova* - Padova, Italy
After my Ph.D. I won a research scholarship and I worked on efficient transfer learning and I co-supervised a project of a Ph.D. student on human trajectory prediction.
- 2020 - 2021 **Teacher Assistant**
University of Padova - Padova, Italy
I have been the teacher assistant for the machine learning course in the Data Science Master Degree. In particular, I gave class lessons to students, prepared the laboratories, prepared machine learning challenges (on deep learning, computer vision, NLP, speech recognition), and I supervised and evaluated the students in their final course project.
- 2019 - 2023 **Thesis Co-Supervisor**
University of Padova - Padova, Italy
During my Ph.D. I co-supervised several students in their final thesis (9 master students, 1 bachelor student) from the computer science and data science degrees.
- 2019 - 2023 **Service**
I served as a reviewer in top venues such as: ICCV-2023, CVPR-2023, BMVC-2023, TPAMI-2022, CVPR-2021, ICPR-2020.

Publications

- Preprint [PP] S. Das, **G. Camporese**, L. Ballan, "Distilling Knowledge for Short-to-Long Term Trajectory Prediction", arXiv 2023.
- Conf [C7] N. Osman, **G. Camporese**, L. Ballan, "TAMFormer: Multi-Modal Transformer with Learned Attention Mask for Early Intent Prediction ", International Conf. on Acoustics, Speech and Signal Processing, Rhodes Island, Greece, 2023. **[oral]** (ICASSP 2023).
- Conf [C6] **G. Camporese**, E. Izzo, L. Ballan, "Where are my Neighbors? Exploiting Patches Relations in Self-Supervised Vision Transformer", British Machine Vision Conference, London, UK, 2022. **[oral spotlight]** (BMVC 2022). (previously selected as oral spotlight at the "Transformers for Vision Workshop (T4V)" at CVPR 2022, New Orleans, Louisiana.)

- Conf [C5] N. Osman, E. Cancelli, **G. Camporese**, P. Coscia, L. Ballan, "Early Pedestrian Intent Prediction via Features Estimation", IEEE International Conference on Image Processing, Bordeaux, France, 2022. (ICIP 2022)
- Conf [C4] Y. Guo*, **G. Camporese***, W. Yang, A. Sperduti, L. Ballan, "Conditional Variational Capsule Network for Open Set Recognition", International Conference on Computer Vision, Virtual, 2021. (ICCV 2021).
- Conf [C3] N. Osman, **G. Camporese**, P. Coscia, L. Ballan, "SlowFast Rolling-Unrolling LSTMs for Action Anticipation in Egocentric Videos", International Conference on Computer Vision, Virtual, 2021. (ICCVw 2021).
- Conf [C2] V. Mendelev*, T. Raissi*, **G. Camporese**, M. Giollo, "Improved Robustness to Disfluencies in RNN-Transducer Based Speech Recognition", International Conference on Acoustics, Speech and Signal Processing, Toronto, Canada, 2021. (ICASSP 2021).
- Conf [C1] **G. Camporese**, P. Coscia, A. Furnari, G. M. Farinella, L. Ballan, "Knowledge Distillation for Action Anticipation via Label Smoothing", International Conference on Pattern Recognition, Milan, Italy, 2020. (ICPR 2020).
- Ph.D. Thesis **G. Camporese**, "Prediction of Activities and Visual Concepts Under Complex and Changing Conditions".
- Ms.C. Thesis **G. Camporese**, "Semantic Segmentation for Visual Inspection".
- Bs.C. Thesis **G. Camporese**, "Algorithms for Sound Synthesis through Physical Modeling".

Computer Skills

AI/ML - Python, PyTorch, distributed training (multi-node, multi-GPU), slurm, Weights & Biases, TensorFlow 2 (also 1.x in the past), Tensorboard, Keras, NumPy, OpenCV, Pillow, scikit-learn, Pandas, Matplotlib, CUDA (writing customly optimized GPU kernels in CUDA C/C++ for PyTorch and TensorFlow), Hugging Face, JAX (currently learning it), Ultralytics.

Other - Bash, C/C++, Git, AWS (EC2, S3), LaTeX, Web Languages (HTML, CSS, JavaScript, Flask), Matlab, Mathematica, Arduino.

Typical Setup - macOS user for laptops, linux user for servers and desktops, VS Code for writing code (previously experienced Vim user). Usually, I use a 14" MacBook pro, an external frontal monitor 27" and remote linux servers/desktops through ssh.

Languages

Italian Mother tongue

English Full professional proficiency

Extra

2023 **Certification** - 3D Reconstruction, Multiple Viewpoints, *Coursera*

2021 **Pull Request** - Implemented ResNets in the *tinygrad* project (lead by *George Hotz*).

2019 **Certification** - Fundamentals of Reinforcement Learning, *Coursera*

2018 **Certification** - Deep Learning Specialization, *Coursera*

2018 **Certification** - Sequence Models, *Coursera*

2017 **Certification** - Convolutional Neural Networks, *Coursera*

2017 **Certification** - Structuring Machine Learning Projects, *Coursera*

- 2017 **Certification** - Improving Deep Neural Networks: Hyperparameter tuning, Regularization and Optimization, *Coursera*
- 2017 **Certification** - Neural Networks and Deep Learning, *Coursera*
- 2011 **Diploma** - Diploma in Music Theory, *Conservatory Giuseppe Tartini*, Trieste

Side Experience

- 2016 - 2018 **Math/Physics Tutor**, *Private lessons* - Padova, Italy
- 2016 - 2017 **Piano Teacher**, *La Casa Della Musica* - Padova, Italy

Interests

Deep learning, machine learning, computer vision, playing piano, guitar and synths, producing electronic music, art in general.