


# Gabriele Berton

## PhD Student in Computer Vision

 [Google Scholar](#)

 [GitHub](#)

 [Personal Website](#)

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### PROFILE

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PhD student in Computer Vision at Polytechnic of Turin under the supervision of Prof. Barbara Caputo.

Skilled researcher and developer, always ready to take on ambitious challenges. I'm constantly looking for innovative solutions to real-world problems while keeping an eye on technical constraints, which leads me to simultaneously publish in the world's top conferences and solve complex tasks.

### EMPLOYMENT & EDUCATION

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#### Applied Scientist Intern | Amazon Berlin | May 2022 - Sep 2022

- Improving an existing action spotting pipeline in videos through multi-modal neural networks
- Analyzing video understanding and audio processing methods for a real-world application

#### PhD Student | Polytechnic of Turin | Nov 2021 – Present

- Developing a large-scale (1B+ images) retrieval software
- Publishing in top-tier conferences and journals
- Researching visual geo-localization methods
- Optimizing the accuracy and scalability of the retrieval software by means of semantic segmentation, classification, approximate nearest neighbor search and more.

#### Master thesis co-supervisor | Polytechnic of Turin | Jul 2020 – Present

- Efficient and scalable visual place recognition, Emanuele Munafò
- A Study on Deep Learning Approaches for Visual Geo-localization, Riccardo Mereu
- Deep learning for Sequence-based Visual Geo-localization, Gabriele Trivigno

#### Applied Scientist | Italian Institute of Technology & Polytechnic of Turin | Apr 2020 – Oct 2021

- Research and development on large scale geo-localization software through deep neural networks
- Publishing in top-tier conferences

#### Bachelor and Master degree in Software engineering | Polytechnic of Turin | 2014 – 2020

#### Software Engineer | Consoft Sistemi | Dec 2017 – Dec 2018

- Full-time job as full-stack software engineer, working in large (20+) and small teams
- Building software based on the MVC framework, using Java, SQL, Angular and more
- In the last months of this job I led the creation of a software for the aerospace company Avio

### SELECTED PUBLICATIONS (FIRST AUTHOR AT TOP CONFERENCES)

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- Deep Visual Geo-localization Benchmark  
**G. Berton**, R. Mereu, G. Trivigno, C. Masone, G. Csurka, T. Sattler, B. Caputo  
In proceedings of **CVPR 2022 (Oral)**
- Rethinking Visual Geo-localization for Large-Scale Applications  
**G. Berton**, C. Masone, B. Caputo  
In proceedings of **CVPR 2022 (Poster)**
- Viewpoint Invariant Dense Matching for Visual Geolocalization (Poster)  
**G. Berton**, C. Masone, V. Paolicelli, B. Caputo  
In proceedings of **ICCV 2021**

- Adaptive-Attentive Geolocalization from few queries: a hybrid approach (Poster)

**G. Berton**, V. Paolicelli, C. Masone, B. Caputo

In proceedings of **WACV 2021**

## PROGRAMMING LANGUAGES AND TECH SKILLS

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- Excellent knowledge of: Python, PyTorch, FAISS, scikit-image, openCV, Git, Visual Geo-localization, Image Retrieval, Object Detection, Image Classification
- Advanced knowledge of: Image Segmentation, Text Detection and Recognition, Unsupervised Video Depth Estimation, MySQL, Java, Java Spring

## LANGUAGES

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- English C2
- Italian native
- Spanish C1
- Chinese B1 (HSK level 4/6 in 2012)

## OTHER EXPERIENCES AND SKILLS

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- I am part of RoboTo, a university team with which I take part at international robotics competitions, through which I've learn to **integrate computer vision methods into robots**.
- I'm a **Python enthusiast**. Since I got to know Python I use it for everything: video editing, web scraping, telegram bots.
- I'm a **math-oriented** person: in my youth I won numerous math competitions, and in high school I reached the finals of the Italian National Olympics of Mathematics both individually and with my high school team.
- I'm an **avid traveler** (been to 40+ countries): I spent one year of high school in China through AFS, after which I took a gap year, working six months in Australian plantations and then traveling from Thailand to Italy without flights. These adventures gave me **confidence**, **curiosity** and **self-motivation**.
- I played football for more than 15 years, many of which I spent as captain of my team. This experience taught me about **teamwork** and **leadership**.
- I have been a soccer referee for three years, during which I've learned to **autonomously take quick decisions under pressure**.
- I've managed the rental of a summer holiday home for three years in my hometown. From this I have learned the basics of **entrepreneurship** and dealing with customers.
- During my last year of high school I was elected as one of four student government presidents. During this year, I had the chance to practice my **leadership** and **public speaking** skills.
- After volunteering as an English teacher at the Fantasy Camp in Belarus in 2016, I became their HR recruiter, and I was in charge of recruiting 60 international English teachers for the summer. I conducted hundreds of interviews, and I assisted the candidates with travel and visa requirements. This experience improved my **organizational** and **scheduling** skills.