

Emanuele Vivoli

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Researcher at [University of Florence](#), [NATO SPS](#)
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PRINCIPAL INTERESTS

PhD topics: Multimodal learning (Vision and Language), scene-text VQA, GNN for Documents Analysis, end-to-end systems;
Other research topics: Multi-sensory data, Ground penetration radar, buried mine detection, anomaly detection, demining robots.

ACADEMIC BACKGROUND

Ph.D. in Multimodal Learning Nov. 2022 – Present
[MICC](#) - [Smart Computing](#), Florence, Italy

- Won 2 scholarships as 1st place among students from Florence, Siena and Pisa
- Research on: Vision and Language, GNN for Documents, scene-text VQA, Hateful memes, [and more] - under direction of prof. [Marco Bertini](#)

M.Sc. Computer Engineering [110/110 with honours] Dec. 2018 – Jul. 2021
[University of Florence](#), [AILab-Unifi](#), Florence (Italy) GPA: **4.0**

- Thesis on: “Semantic understanding of scientific papers”

B.A. Computer Engineering [110/110 with honours] Sep. 2015 – Dec. 2018
[University of Florence](#), [AILab-Unifi](#), Florence (Italy) GPA: **3.9**

- Thesis on: “Handwriting Recognition and Classification”

EMPLOYMENT HISTORY

Researcher and Teaching Assistant Jul. 2022 – Present
[University of Florence](#), [NATO SPS](#), Florence, Italy

- Key words: self-navigating robot; holographic radars; buried land-mines
- Main tasks: dataset creation; classification; anomaly detection; prototyping

[Computer Vision Center](#), Barcelona, Spain Apr. 2022 – Jul. 2022

- Defined task of Multilingual scene-text VQA. Conversion of ST-VQA models for multilingual. Created multilingual (5+ lang) dataset
- Frameworks: mmf (facebook), transformers (huggingface)

[University of Florence](#), Florence, Italy Aug. 2021 – Mar. 2022

- Speeded up paper code of x7.5 by refactoring (data pre-processing and training)
- Passed Bar Exam for Engineering obtaining Italian title of Engineer

[University of Technology](#), [EISLAB](#), Luleå, Sweden Jun. 2019 – Aug. 2019

- Found bug and fixed paper code on EEG Motor Imagery Classification
- Taught workshops on “git and vscode for remote programming” and “web services with Angular2+”

[University of Florence](#), Florence, Italy Jan. 2019 – Feb. 2019

- Tutor experience working with 20+ High school students and 3 other tutors
- Designed 2 weeks of frontal and interactive lessons on python, jupyter notebooks, opencv using machine learning (SVM, MLP, decision trees)

Software Engineer

Multiple companies (freelancer), Florence, Italy Feb. 2017– Dec. 2021

- Developed 3 Web applications for real-time data management (i.e. doctor appointments and receipts)
- Supported 80 doctors, 1500 patients each with low latency and real-time updates, in Angular2+ and GCP, with no-SQL database.

CONFERENCE ARTICLES See also [my google scholar](#) page.

4. **Emanuele Vivoli**, L. Bossi, M. Bertini, P. Falorni, L. Capineri, Error assessment of microwave holography inversion for shallow buried objects, *IWA-GPR*, Lisbon - Portugal, 2023
3. A. Gemelli, **Emanuele Vivoli**, S. Marinai, CTE: A Dataset for Contextualized Table Extraction, *IRCDL Proceedings*, Bari - Italy, 2023 [arXiv](#)
2. **Emanuele Vivoli**, A.F. Biten, R. Tito, A. Mafra, D. Karatzas, L. Bigorda, MUST-VQA: on MULTilingual approaches for Scene-text and Text VQA, *ECCV Proceedings*, Tel Aviv - Israel, 2022 [arXiv](#)
1. A. Gemelli, **Emanuele Vivoli**, S. Marinai, Graph Neural Networks and Representation Embedding for Table Extraction in PDF Document, *ICPR Proceedings*, Montréal - Québec, 2022 [arXiv](#)

Refereed Publications

(ICPR) International Conference on Pattern Recognition, (ECCV) European Conference on Computer Vision, (IRCDL) Information and Research science Connecting to Digital and Library science, (IWA-GPR) International Workshop on Advanced Ground Penetrating Radar

UNDER REVIEW

2. **Emanuele Vivoli**, A. Gemelli, S. Marinai, Supporting Dysgraphia Diagnosis by Analyzing Smart Pen Handwritings, *under review*, tba
1. **Emanuele Vivoli**, L. Bossi, L. Capineri, M. Bertini, LD2: Landmine Detection Dataset for shallow buried objects, *under review*, tba