

# Elisabetta Fedele

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## Education

- Sep. 2021 – **Master in Computer Science, ETH Zürich**  
present
  - Major in **Machine Intelligence** and Minor in **Theoretical Computer Science**.
  - **Courses:** Algorithmic Game Theory, Algorithms Lab, Randomized Algorithms and Probabilistic Methods, Graph Theory, Computational Intelligence Lab, Generative Visual Models, Advanced Machine Learning, Machine Perception, Computer Graphics, Computer Vision, NLP.
  - **Anticipated graduation date:** May 2024 (with the possibility to extend the student status until September 2025).
- Sep. 2018 – **Bachelor in Computer Systems Engineering, Politecnico di Milano**  
Jun. 2021
  - Final grade: 110/110 *cum laude*.
  - **Selected courses:** Probability and Statistics, Mathematical Analysis I and II, Linear Algebra, Algorithms and Principles of Theoretical Computer Science, Software Engineering.

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## Research Experience

- Jul. 2023 – **Research Intern, EPFL**  
Sep. 2023
  - Advised by Prof. Alessandro Chiesa and part of Compsec Lab.
  - I worked on the time-space tradeoff of the sumcheck protocol.
  - I found a new algorithm that, by interpolating between the best time-efficient and the best space-efficient algorithms, greatly improves the practical performance of the protocol.
- Mar. 2023 – **Semester Project Student, Google Zürich**  
Jun. 2023
  - Co-advised by Dr. Francis Engelmann, Dr. Federico Tombari, and Prof. Marc Pollefeys.
  - We leveraged the capabilities of CLIP to expand the task of 3D instance segmentation to an Open-Vocabulary setting.
  - Resulted in a publication at **NeurIPS 2023**.

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## Publications

Ayca Takmaz\*, **Elisabetta Fedele\***, Robert W. Sumner, Marc Pollefeys, Federico Tombari, Francis Engelman. OpenMask3D: Open-Vocabulary 3D Instance Segmentation. *Advances in Neural Information Processing Systems (NeurIPS)*, 2023.

Dimitri Von Rütte\*, **Elisabetta Fedele\***, Jonathan Thomm\*, Lukas Wolf\*. FABRIC: Personalizing Diffusion Models with Iterative Feedback. *Under review*, 2023.

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## Teaching Experience

- Feb. 2023 – **Machine Perception, ETH Zürich**  
Aug. 2023
  - Authored lecture notes for the course.
- Sep. 2020 – **Fundamentals of Computer Science, Politecnico di Milano**  
Jan. 2021
  - Tutored an undergraduate class of 250 students during the coding laboratory.

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## Academic Projects

- Sep. 2022 – **Ray tracing renderer, ETH Zürich**  
Dec. 2022
  - I implemented a ray tracing renderer in C++ for the course of *Computer Graphics*.

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\* authors contributed equally

May 2022 - **Sentiment Analysis of Tweets**, *ETH Zürich*

Jul. 2022 ○ Group project for the course of *Computational Intelligence Lab*.

○ We compared performance of BERTweet, LSTM on Word2Vec embeddings and FastText and we finetuned BERTweet to achieve an accuracy of 92.04%.

○ Code available [here](#).

Apr. 2022 - **3D Human Pose and Shape Estimation from RGB Images**, *ETH Zürich*

Jun. 2022 ○ Group project for the course of *Machine Perception*.

○ We implemented a modified version of PARE in PyTorch, with a HR-NetV32 backbone, achieving an error of 57.5 PA-MPJPE.

○ Report available [here](#).

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## Honors & Awards

2023 **NeurIPS 2023 Scholar Award**, *NeurIPS*

2023 **Summer@EPFL Fellowship**, *EPFL*

2022-2023 **Scholarship for Sardinian students**, *Regione Sardegna*

2020-2021 **Merit-Based Scholarship**, *Politecnico di Milano*

2019 **Scholarship for Sports Merits**, *Politecnico di Milano*

2019 **Best Freshmen Prize**, *Politecnico di Milano*

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## Languages and Skills

**Languages:** Italian (native), English (fluent), French (basic), German (basic).

**Computer Skills:** Python, Java, C, C++, MATLAB, Git,  $\text{\LaTeX}$ , PyTorch, TensorFlow, Open3D.

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## Extracurricular activities

2022 - present **Sailing Instructor Diploma - Level I**, *Italian Sailing Federation*

2006–2019 **Professional Optimist and 420 sailor**, Cagliari/Mandello del Lario

○ Member of the **Italian Sailing Team** from 2012 to 2019.

○ Competed in 6 **World Championships** and in 4 **European Championships**.

○ Awarded **Best Italian Female Sailor** by *Tutto Vela* for the year 2014.