

# Davide Belli

SENIOR DEEP LEARNING RESEARCH ENGINEER

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## Education

### University of Amsterdam

[Amsterdam, NL](#)

MSC IN ARTIFICIAL INTELLIGENCE

Sep. 2017 - Sep. 2019

- Graduated **Cum Laude**, GPA 8.8/10 (A+)
- Main Courses: Machine Learning, Computer Vision, NLP, Deep Learning, Reinforcement Learning, Information Retrieval
- Skills and technologies: Python (NumPy, Matplotlib, PyTorch, scikit-learn), MATLAB, Git, LaTeX

### University of Trento

[Trento, IT](#)

BSC IN COMPUTER SCIENCE

Sep. 2014 - Jul. 2017

- Graduated **Cum Laude**, GPA 110/110
- Main Courses: Calculus, Linear Algebra, Probability and Statistics, Logics, Algorithms and Data Structures, Functional and Object Programming, Web and Mobile Programming, OS, Networks, Databases, Compilers, Software Engineering
- Skills and technologies: C++, Java, Android, Node.js, Git, HTML/CSS, XML

## Work Experience

### Qualcomm AI Research

[Amsterdam, NL](#)

SENIOR RESEARCH ENGINEER, DEEP LEARNING

Nov. 2019 - Present

- Designed and implemented novel DL methods for Perception (visual and RF domains) and Model Efficiency teams (LLMs). Integrated solutions in products released to customers and internal departments.
- Improved the performance of a biometric classifier from 90% to 99% AUC on challenging real-world data.
- Reduced the positioning error of a GNSS localisation system by 50% in noisy urban canyon scenarios
- Improved inference efficiency in recent LLMs (Phi 3, Llama 3, Mistral), decreasing memory footprint by 45% and increasing throughput by 40%.
- Topics: Domain generalization, Personalization, Transfer learning, Multi-modal learning, Kalman Filters, LLM efficiency, Dynamic Sparsity.
- Skills and technologies: Python (PyTorch, NumPy, Matplotlib, Pandas, Hydra), Bash, Git, Docker.

### University of Amsterdam

[Amsterdam, NL](#)

GRADUATE TEACHING ASSISTANT

Oct. 2018 - Jun. 2019

- Graduate Teaching Assistant for the core courses Machine Learning 1, Deep Learning and Information Retrieval in the MSC AI at UvA.
- Held lab sessions, designed and corrected exams, homework and lab assignments.

## Publications

- H Gorp\*, [D Belli\\*](#), A Jalalirad, B Major, *Neural Augmented Kalman Filters for Road Network assisted GNSS positioning*, **Under review**.
- M Federici\*, [D Belli\\*](#), M van Baalen, A Jalalirad, A Skliar, B Major, M Nagel P Whatmough. *Efficient LLM Inference using Dynamic Input Pruning and Cache-Aware Masking*, **MLSys 2025**
- A Jalalirad, [D Belli](#), B Major, S Jee, H Shah, W Morrison, *GNSS Positioning using Cost Function Regulated Multilateration and Graph Neural Networks*, **ION GNSS+ 2023**
- [D Belli](#), D Das, B Major and F Porikli, *Online Adaptive Personalization for Face Anti-spoofing*, **ICIP 2022**.
- [D Belli](#), D Das, B Major and F Porikli, *A Personalized Benchmark for Face Anti-spoofing*, **WACV 2022 MAP-A workshop**.
- [D Belli](#) and T Kipf, *Image-Conditioned Graph Generation for Road Network Extraction*, **NeurIPS 2019 GRL workshop**.
- G Bani\*, [D Belli\\*](#), G Dagan\*, A Geenen\*, A Skliar, A Venkatesh, T Baumgartner, E Bruni and R Fernández, *Adding Object Detection Skills to Visual Dialogue Agents*, **ECCV 2018 SiVL workshop**.
- [D Belli](#), S Hu, E Sogancioglu and B van Ginneken, *Context Encoding Chest X-rays*, **arXiv preprint**.
- E Sogancioglu\*, S Hu\*, [D Belli](#) and B van Ginneken, *Chest X-ray Inpainting with Deep Generative Models*, **arXiv preprint**.

## Volunteering

- 2020-25 **Conference Reviewer:** WACV (2022-2023-2024-2025), LoG (2023-2024), ICCV (2021)
- 2020-25 **Workshop Reviewer:** ML on Graphs (GLF @ NeurIPS 2022-2023, GLB @ WWW 2022-2023, GRL+ @ ICML 2020)
- 2019-25 **Mentor at LeadTheFuture:** mentorship organization for selected top students in STEM from Italy.
- 2017-19 **Member and Treasurer at Master Committee:** organizing educational events for master students at UvA.
- 2015-17 **School Tutor:** teaching Maths, Physics and Computer Science to High School and Bachelor students.

## Honors & Awards

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2022-25	<b>Top 4%:</b> LeetCode worldwide programming contests	<i>Amsterdam, NL</i>
2019	<b>1st Place:</b> Amsterdam Programming Contest	<i>Amsterdam, NL</i>
2018	<b>Top 50%:</b> ACM-ICPC Nwerc (European Semi-Finals)	<i>Eindhoven, NL</i>
2018	<b>Top 50%:</b> BAPC Regionals	<i>Louvain-la-Neuve, BE</i>
2016	<b>Bronze Medal:</b> ACM-ICPC Swerc (European Semi-Finals)	<i>Porto, PT</i>
2016-19	<b>Top 15%:</b> Google Hashcode	<i>Amsterdam, NL</i>
2008-13	<b>Top 0.1% (7<sup>th</sup> out of 9000):</b> International Championships of Mathematical Games (Italian Finals)	<i>Milan, IT</i>
2019	Travel Scholarship Gouda de Vries	<i>Amsterdam, NL</i>
2019	Scholarship EEML Summer School	<i>Bucharest, RO</i>
2018	MSc Scholarship Giuseppe Favriani	<i>Trieste, IT</i>
2017	BSc Merit Award University of Trento	<i>Trento, IT</i>
2014	High School Merit Award Confindustria	<i>Mantova, IT</i>

## Academic Research Projects

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### Image-Conditioned Graph Generation with Transformers

2019

- Designed a new transformer-based model for image-to-graph generation, outperforming existing generative models for graphs. Released a new dataset and metric for the extraction of road networks from segmentation of satellite images.
- Master Thesis project supervised by Thomas Kipf (AMLab, UvA).
- Image-Conditioned Graph Generation for Road Network Extraction* was accepted at NeurIPS 2019, GRL workshop.

### Improving Visual Dialogue agents with Mask R-CNN

2018

- Improved a multi-modal learning agent for Visual Question Answering using Mask R-CNN.
- Research project supervised by Elia Bruni (ILLC, UvA).
- Adding Object Detection Skills to Visual Dialogue Agents* was accepted at ECCV 2018, SiVL workshop.

### Image Inpainting for anomaly detection in medical imaging

2018

- Applied Deep Generative Models to inpainting for the unsupervised discovery of anomalies in medical images.
- Research project part of the 'Honours Programme' for top students at UvA, supervised by Shi Hu (AMLab, UvA).
- Presented our work in the papers *Chest X-ray Inpainting with Deep Generative Models* and *Context Encoding Chest X-rays*.