

# Davide Belli

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 (I, II), Computer Vision (I, II), NLP (I, II), 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 110/100
- 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 (I, II)
- 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*

- Working on applied DL research in the Perception team, focusing on visual tasks with unbalanced, real-world data.
- Implemented a variety of recent DL methods and architectures. Introduced improvements from the research tracks in a product periodically released to customers.
- Main topics: Domain generalization, Personalization, Transfer learning, Style transfer, Multi-modal learning, Online learning.
- Skills and technologies: Python (PyTorch, NumPy, Matplotlib, Pandas), Bash, Git

### 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.
- Responsible for giving practical sessions, designing and correcting exams, homeworks and lab assignments.

## Research Projects

### Image-Conditioned Graph Generation with Transformers

*2019*

- Introduced 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 from 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 from 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 from AMLab, UvA.
- Presented our work in the papers *Chest X-ray Inpainting with Deep Generative Models* and *Context Encoding Chest X-rays*.

## Publications

- [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.

## Honors & Awards

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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>

## Volunteering

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2020-21	<b>Reviewer duties</b> , WACV 2022; ICCV 2021; WWW 2021 GLB; ICML2020 GRL+;
2019-21	<b>Mentor at LeadTheFuture</b> , mentorship organization for selected top students in STEM from Italy.
2017-19	<b>Member and Treasurer at Master Committee</b> , organizing educational events for master students at UvA.
2015-17	<b>School Tutor</b> , teaching Maths, Physics and Computer Science to High School and Bachelor students.