# Andrea **Conti**

*08 January 1996* *Florence, Italy*

(+39) 338 1382564 - andrea.conti@tutanota.com - andreaconti - andrea−conti

## Education

### PhD in Computer Science and Engineering

*Bologna, Italy*

Alma Mater Studiorum *November 2021 - now*

- Algorithms and networks operating on Sony Depth Sensing datasets (real/synthetic) to provide neural network-based RGB-D fusion capabilities and yield depth maps on par with the competition and tuned to operate on SDS camera kit data

### Master Degree in Computer Engineering, 110/110 cum laude

*Bologna, Italy*

Alma Mater Studiorum *September 2018 - Dicember 2020*

- Training course focused on artificial intelligence and computer vision
- Final thesis project "*Diving between depth prediction and depth completion*" focused on the application of deep neural networks to the monocular perception of depth with the optional support of lidar sensors.
  Main themes: Deep Learning, LIDAR sensors, Depth Prediction, Depth Completion
  Supervisor: Prof. Stefano Mattoccia
  Assistant supervisors: Dott. Matteo Poggi, Dott. Filippo Aleotti, Dott. Fabio Tosi

### Bachelor Degree in Computer Engineering, 110/110 cum laude

*Bologna, Italy*

Alma Mater Studiorum *September 2015 - October 2018*

- Final thesis project "*Misure di confidenza basate su machine learning per sistemi embedded*" focused on the application of artificial intelligence techniques to the prediction of the confidence of depth maps taking into account the efficiency.
  Main themes: Machine Learning, Depth Prediction, Decision Trees
  Supervisor: Prof. Stefano Mattoccia
  Assistant supervisors: Dott. Matteo Poggi, Dott. Fabio Tosi

## Experience

### Research Fellow

*Bologna, Italy*

Alma Mater Studiorum *March 2021 - November 2021*

- Research grant as part of the **Alma Value - Proof of Concept** program for the enhancement of Alma Mater patents
- Funded by the Ministry of Economic Development (MISE)
- **Research project** focused on exploiting the possibility of improving the depth maps obtainable from one or more standard cameras by exploiting the availability of scattered depth data, for example but not necessarily provided by an active depth sensor
  Supervisor: Stefano Mattoccia

### Teaching Tutor

*Bologna, Italy*

Alma Mater Studiorum *September 2021 - September 2022*

- Tutoring activity related to the class *Calcolatori Elettronici* of the 2nd cycle degree in Computer Engineering

### Teaching Tutor

*Bologna, Italy*

Alma Mater Studiorum *February 2021 - September 2021*

- Tutoring activity related to the class *Fondamenti di Informatica* P-2 of the Mechatronic engineering course

## Publications

Unsupervised confidence for LiDAR depth maps and applications *October 2022*

**A. Conti**, M. Poggi, F. Aleotti, S. Mattoccia. IEEE/RSJ International Conference on Intelligent Robots and Systems (IROS), Kyoto, 2022

Multi-View Guided Multi-View Stereo *October 2022*

M. Poggi*, **A. Conti***, S. Mattoccia. IEEE/RSJ International Conference on Intelligent Robots and Systems (IROS), Kyoto, 2022 *joint authorship

Monitoring social distancing with single image depth estimation *April 2022*

A. Mingozzi, **A. Conti**, F. Aleotti, M. Poggi, S. mattoccia. IEEE Transactions on Emerging Topics in Computational Intelligence (TETCI)

On Deployment of Out-of-the-Box Embedded Devices for Self-Powered River Surface Flow Velocity Monitoring at the Edge *May 2021*

A. H. Livoroi, **A. Conti**, L. Foianesi, F. Tosi, F. Aleotti, M. Poggi, F. Tauro, E. Toth, S. Grimaldi and S. Mattoccia. MDPI Applied Science

## Expertise

### Machine Learning & Big Data

- Advanced knowledge of the main **machine learning** paradigms (supervised, self-supervised, semi-supervised, unsupervised)
- Particular focus on methodologies and techniques associated with **Deep Learning** and in-depth knowledge of associated technologies (Pytorch, Tensorflow, SciPy stack, Optuna and others)
- Advanced knowledge of the instruments useful to manipulate data for **Data Mining** such as Matplotlib, Pandas and Seaborn
- Good knowledge of distributed computing using Spark in Python and Scala

### DevOps & systems administration

- Good knowledge of the instruments used to administrate unix systems
  - scripting languages such as *Bash* and *Fish*
  - remote access tools such as *ssh*, *tmux*, *openvpn*
  - monitoring tools and firewalls (*snmp*, *iptables*, *rsyslog*)
- Excellent knowledge of virtualization tools such as virtual machines and *Docker*
- Great knowledge of *Git*

### Software Engineering

- Knowledge of the main programming paradigms:
  - imperative programming in **C** and **Golang**
  - object-oriented programming in **Python**, **Java**, **C++**
  - functional programming in **Haskell**, **Elixir**, **Clojure**
  - blended programming in **Scala** e **Python**
  - message passing (distributed) programming in Elixir and Golang

### Languages

- **Italiano** native language.
- **English** fluent writing and reading, good speaking skills.

## Projects

### Facial recognition application

- Development of a library for face recognition leveraging state of the art deep learning techniques, personal final project associated to the computer vision class

### Reinforcement learning applied to platform games

- Study about the application of Deep Learning based RL techniques to build an autonomous agent able to play by itself to platform games

### Stereo depth sensing algorithm from scratch

- Development of a stereo depth sensing algorithm based on similarity of a moving windows from scratch in Python

## Authorization to process personal data

I hereby authorize the use of my personal data in compliance with the Reg. UE 2016/679.