



# Alessio Falai

APPLIED SCIENTIST · TEXT-TO-SPEECH & SPEECH PROCESSING

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## Education

### Alma Mater Studiorum - University of Bologna



M.S. IN ARTIFICIAL INTELLIGENCE · COMPUTER ENGINEERING

Grade 110 / 110 with honours

Thesis Conditioning text-to-speech synthesis on dialect accent: a case study

Python PyTorch SKLearn Prolog Scala Spark MiniZinc/Z3

Bologna, Italy

October 2019 - March 2022

### Florentina Studiorum Universitas - University of Florence



B.S. IN COMPUTER SCIENCE

Grade 110 / 110 with honours

Thesis Refinement of a Python library to perform OCR on identity documents

C Java MySQL Python

Florence, Italy

October 2016 - October 2019

### I.T.S. Tullio Buzzi



HIGH-SCHOOL DIPLOMA IN INFORMATION AND COMMUNICATIONS TECHNOLOGY

Grade 100 / 100

Thesis Implementation of a C++ holographic experience

C C++ Java PHP MySQL Javascript HTML CSS

Prato, Italy

September 2011 - July 2016

## Skills

### TECHNICAL

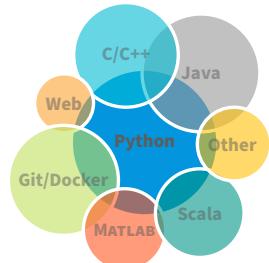
**Programming** Python, Java, C, C++, Scala, MATLAB, Prolog, MiniZinc

**Libraries** PyTorch, TensorFlow, MXNet, SciPy (NumPy, Pandas, ...), SciKits (scikit-learn, scikit-image, ...), Qt, OpenCV, Django, Flask, Spark, Z3, OR-Tools

**Tools** Bash, Git, Docker, L<sup>A</sup>T<sub>E</sub>X, Jupyter

**Web** HTML, CSS, Javascript, jQuery, PHP, REST API, MySQL, Wordpress

**Cloud** AWS (Sagemaker, EC2, ECS, Athena, SES, Quicksight, ...), Azure (Cognitive Services)



### INTERPERSONAL

**Languages** Italian, English

**Capabilities** Project Planning, Project Management, Teamwork, Leadership, Organization, Initiative, Curiosity, Problem Solving, Modeling

**Hobbies** Photography, Travelling, Food Culture, Cuisine



### PREFERENCES

**Likings** Speech Processing, Text-To-Speech, Computer Vision, Machine Learning, Deep Learning, Natural Language Processing, Declarative/Constraint Programming

**Dislikings** Web Development (e.g. JS), .NET Framework (e.g. C#)

## Amazon

APPLIED SCIENTIST · FULL-TIME

Cambridge, UK

November 2021 - Present

- Project** From research to implementation to deployment of multi-speaker multilingual text-to-speech models, both for Cloud and On-device applications



- Achievements**
- Released Cloud Alexa male voices in more than 10 locales (see [this article](#) as an example for it-IT)
  - Contributed to the research required for high-performance On-device models operating in a cross-lingual fashion (see [this article](#) for the public collaboration announcement between Alexa and BMW)
  - Published 2 papers as second author in Interspeech 2022 and submitted 1 paper as first author in Interspeech 2023

Python MXNet TensorFlow PyTorch AWS

## Amazon

DATA SCIENCE INTERN · APPLIED SCIENTIST I · INTERNSHIP

Virtual

February 2021 - August 2021



- Project** Application of predictive and prescriptive analytics on HR metrics such as attendance and absenteeism
- Achievements** Worked in a multi-cultural team and managed to deliver multiple milestones across different projects

Python SKLearn AWS

## Quid Informatica

Florence, Italy

PYTHON DEVELOPER · PART TIME

August 2020 - September 2020



- Project** Refinement of a text classification model and implementation of specialized extraction algorithms to parse OCR results
- Achievements** Trained a text classification model to categorize financial documents, using fastText

Python OpenCV Flask Tornado Gunicorn SpaCy fastText Azure Cognitive Podman

## Quid Informatica

Florence, Italy

PYTHON DEVELOPER · FREELANCE

February 2020 - June 2020



- Project** Development of 3 production-grade Python micro-services working in banking environments, to classify and extract text from identity documents
- Achievements** Implemented NER (Named Entity Recognition) techniques to parse raw OCR results, using spaCy

Python OpenCV Flask Gunicorn SpaCy Tesseract Google Vision ABBYY OCR.Space Azure Cognitive

## QI-Lab

Florence, Italy

PYTHON DEVELOPER · FREELANCE

June 2019 - October 2019



- Project** Identity documents OCR library development
- Achievements** Implemented edge detection and text detection techniques to improve OCR results, using OpenCV

Python OpenCV Django Tesseract Google Vision ABBYY Docker

## QI-Lab

Florence, Italy

PYTHON DEVELOPER · INTERNSHIP

March 2019 - May 2019



- Project** Identity documents OCR library development
- Achievements** Implemented a custom image binarization algorithm, using OpenCV

Python OpenCV Django Tesseract

## Continental

Pisa, Italy

PYTHON DEVELOPER · FREELANCE

January 2019 - September 2019



- Project** Manually operated visual inspection digitalization
- Achievements** Development of a production-grade modular GUI working in industrial settings, using Qt

Python Qt

## EasyClaims

Virtual

PHP DEVELOPER · FREELANCE

January 2018 - March 2018



- Project** Insurance claims video verification interface
- Achievements** Gained some real-world knowledge about developing production software, using agile kanban techniques

PHP MySQL

## Developer



PYTHON DEVELOPER · INTERNSHIP

Florence, Italy

June 2015

*Project* Barcode handling GUI design and deployment

*Achievements* Gained insights about company environments and software design principles

Python Qt

## Websites

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### tognonishop.com

Virtual



WEBSITE ADMINISTRATOR · FREELANCE

April 2020 - August 2020

*Project* Fashion (shoes) e-commerce website

Wordpress Woocommerce

### studio54italy.it

Virtual



WEBSITE ADMINISTRATOR · FREELANCE

March 2020 - October 2020

*Project* Textile catalog website

Wordpress Woocommerce

### loscoiattolofirenze.it

Virtual



WEBSITE ADMINISTRATOR · FREELANCE

March 2020 - June 2020



*Project* Fashion (clothes) e-commerce website

Wordpress Woocommerce

### walterquiet.com

Virtual



WEBSITE ADMINISTRATOR · FREELANCE

December 2018 - June 2020

*Project* Photography portfolio website

Wordpress Squarespace Woocommerce Leadpages Deadline Funnel Kajabi Kartra

## Challenges

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### DOMESTIC

2015 **Finalist**, RoboCup Junior Italia

Malpensa Fiere, Italy

2015 **Finalist**, OIS - Olimpiadi di Informatica a Squadre (6th edition)

University of Bologna

## Certifications

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2021 **8.0 / 9.0**, IELTS for UKVI General Training

Rome, Italy

## Publications

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Interspeech 2022 **Ariadna Sanchez, Alessio Falai et al.**, Unify and Conquer: How Phonetic Feature Representation Affects Polyglot Text-To-Speech (TTS)

Incheon, South Korea

Interspeech 2022 **Ziyao Zhang, Alessio Falai et al.**, Mix and Match: An Empirical Study on Training Corpus Composition for Polyglot Text-To-Speech (TTS)

Incheon, South Korea

## Other info

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### ITALIAN JOB MARKET

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