

Giulio Rossolini

PH.D. STUDENT IN EMERGING DIGITAL TECHNOLOGIES

BIRTH DATE: 05/05/1996 · GENDER: MALE · NATIONALITY: ITALIAN

Poggibonsi (SI), Italy

☎ (+39) 3772610705 | ✉ giulio.rossolini@santannapisa.it | 🌐 giuliorossolini | in giuliorossolini



Summary

Giulio is a second-year Ph.D. student at the Real-Time Systems Laboratory of the Scuola Superiore Sant'Anna of Pisa. He graduated (cum laude) in Embedded Computing Systems Engineering, a Master's Degree jointly offered by the Scuola Superiore Sant'Anna of Pisa and University of Pisa. His current research interests include the design and implementation of software tools to support and increase the trustworthiness of machine learning algorithms used in computer vision applications and safety-critical systems.

Education

Scuola Superiore Sant'Anna

PH.D. IN EMERGING DIGITAL TECHNOLOGIES

Topics - Deep Learning for safety-critical systems and autonomous driving

Supervisors - Giorgio Buttazzo, Alessandro Biondi

Pisa, IT

2020/2021 - Ongoing

Scuola Superiore Sant'Anna

MASTER'S DEGREE IN EMBEDDED COMPUTING SYSTEMS (110/110 CUM LAUDE)

Thesis - Coverage-driven Safety Monitoring of Deep Neural Networks

Supervisors - Giorgio Buttazzo, Alessandro Biondi

Pisa, IT

2018/2019 - 2019/2020

University of Pisa

BACHELOR'S DEGREE IN COMPUTER ENGINEERING (110/110 CUM LAUDE)

Thesis - Comparing Floats and Posits on K-Nearest Neighbours Problems

Supervisors - Marco Cococcioni, Emanuele Ruffaldi

Pisa, IT

2015/2016 - 2017/2018

Istituto Tecnico Industriale Statale (ITIS) - Tito Sarrocchi

DIPLOMA IN INFORMATION TECHNOLOGY (100/100)

Final Project - Spectrum analyzer in Java

Siena, IT

2010/2011 - 2014/2015

Experience

BluCRM SRL

INTERNSHIP - DATABASE PROGRAMMER

- Back-end and database programmer, MySQL and C#

Siena, Italy

February 2015 - April 2015

University of Siena

INTERNSHIP - PROGRAMMING COURSE WITH ARDUINO AND UDOO

Siena, Italy

March 2014 - May 2014

Codytel Internet

INTERSHIP - WEB PROGRAMMER AND DESIGNER

- Design of web-commercial platforms (php, javascript, CSS, Wordpress)
- Internship in cooperation with Leonardo da Vinci programme scholarship (ERASMUS+)

Valencia, Spain

January 2014 - March 2014

Altaquota Information Technologies SRL

INTERSHIP - NETWORK AND TECHNICAL SERVICE SUPPORT

Poggibonsi(SI), Italy

June 2013 - September 2013

VET - Erasmus+

SCOLARSHIP - LEONARDO DA VINCI PROGRAMME (VET)

Valencia, Spain

January 2014 - March 2014

Research activities

Academic Courses

- Deep Neural Networks - Scuola Superiore Sant'Anna - 6 hours teaching (02/2022 - 03/2022). Topics: Explainable AI; Trustworthiness in AI for safety critical systems; Attention mechanisms for NLP and Computer Vision applications.

Seminars and presentations

- Real-world adversarial attacks for autonomous driving system (Evento STEM) - 3/09/2021
- Adversarial Attacks e sistemi a guida autonoma (for Allievi SSSUP) - 01/02/2020
- Real-world adversarial attacks for autonomous driving system (for HUAWEI) - 03/09/2021
- Trustworthiness in Artificial Intelligence- 03/09/2021 - TeCIP Institute, Pisa, IT.
- Radial Basis Functions - 12/2020 - TeCIP Institute, Pisa, IT.
- Support Vector Machine - 12/2020 - TeCIP Institute, Pisa, IT.
- Convolutional-based Attention in Computer Vision - 12/2020 - TeCIP Institute, Pisa, IT.
- Attention and Transformers for Natural Language Processing - 12/2020 - TeCIP Institute, Pisa, IT.
- Visione Artificiale per auto a guida autonoma - 8° Festa della Robotica - Pomarance 20/10/2022 - 11/2021

Reviews

- IEEE Transaction on Emerging Topics in Computing; Journal of Supercomputing; DAC'21; ISORC 2022

Publications

Evaluating the Robustness of Semantic Segmentation for Autonomous Driving against Real-World Adversarial Patch Attacks

WINTER CONFERENCE ON APPLICATION FOR COMPUTER VISION (WACV) 2022

Federico Nesti*, **Giulio Rossolini***, Saasha Nair, Alessandro Biondi, Giorgio Buttazzo

Waikoloa - Hawaii (US)

Jan 04-08 2022

Increasing the Confidence of Deep Neural Networks by Coverage Analysis

IEEE TRANSACTIONS ON SOFTWARE ENGINEERING, TO APPEAR

Giulio Rossolini, Alessandro Biondi, Giorgio Buttazzo

Mar 21 2022

On the Real-World Adversarial Robustness of Real-Time Semantic Segmentation Models for Autonomous Driving

PREPRINT: [Link](#)

Giulio Rossolini, Federico Nesti, Gianluca D'Amico, Alessandro Biondi, Giorgio Buttazzo,

On the Minimal Adversarial Perturbation for Deep Neural Networks with Provable Estimation Error

PREPRINT: [Link](#)

Fabio Brau, **Giulio Rossolini**, Alessandro Biondi, Giorgio Buttazzo

Defending From Physically-Realizable Adversarial Attacks Through Internal Over-Activation Analysis

PREPRINT: [Link](#)

Giulio Rossolini, Federico Nesti, Fabio Brau, Alessandro Biondi, Giorgio Buttazzo

Skills and other certifications

LANGUAGES

Italian (Mother tongue) - Understanding: Excellent, Speaking: Excellent, Writing: Excellent

English Understanding: Good, Speaking: Good, Writing: Good

TECHNICAL SKILLS AND PROFESSIONAL

OS Linux, Windows, OSX

Programming C/C++, Assembly X86_32/64, \LaTeX , Matlab, Python, Java, Javascript, php, Bash, SQL, VHDL, Verilog, Cuda

Environments Matlab, Simulink, QT Framework, Tensorflow, Caffe, XVR, Vivado, Modelsim, Workbench, LTSpice, Docker
Alsa libraries, Eclipse, Audacity, Anaconda, STM32CubeMX, Contiki, Californium

Soft Skills Communication, Self motivated, Problem-solving, Time management

PROFESSIONAL CERTIFICATION

Machine Learning course August 2018 - Offered by Stanford University (Coursera)

Natural Language Processing Specialization [Link](#) December 2022 Certified Specialization by Stanford University (Coursera)

European Computer Driving Licence (ECDL) 2012-2013

Cisco Certified Network Associate (CCNA) April 2018

Cambridge Preliminary English Test March 2014

MISCELLANEOUS AND HOBBIES

Driving License B (car)

Artistic Acoustic and electric guitar

Sport Swimming

References

Giorgio Buttazzo Full Professor, Scuola Superiore Sant'Anna

Alessandro Biondi Assistant Professor, Scuola Superiore Sant'Anna

Marco Cococcioni Associate Professor, Università di Pisa