



Alessio Ragno

Nationality: Italian

ABOUT ME

I am a Ph.D. student in Artificial Intelligence under the supervision of [prof. Roberto Capobianco](#). I am interested in the application of AI to different scientific fields and I think that Explainable AI could play an essential role for this purpose. My Ph.D. project consists in developing model-specific XAI methods, using a topology-based approach, in order to identify and learn data representations able to provide human-interpretable explanations of the neural network predictions. I have an M.Sc. degree in AI & Robotics and a B.Sc. degree in Computer and Control Engineering. I have also some background in the application of AI to chemistry and drug discovery gained through abroad experience at the University of North Carolina and collaborations with the Pharmaceutical Chemistry and Technology Department at the Sapienza University of Rome.

WORK EXPERIENCE

Teaching Assistant

DIPARTIMENTO DI INGEGNERIA INFORMATICA, AUTOMATICA E GESTIONALE - SAPIENZA UNIVERSITÀ DI ROMA [Dec 2021 – Current]

City: Rome

Country: Italy

TA in several University courses:

1. Bioinformatics
2. Reinforcement Learning
3. Programming Foundations

Consultant and Private Lessons

[Dec 2021 – Current]

Artificial Intelligence and Computer Science consultant. Private tutor for University and High School students.

High School Teacher

Liceo Scientifico Enrico Fermi di Velletri [Nov 2021 – Nov 2021]

City: Velletri

Country: Italy

Web Developer and Machine Learning Engineer

www.3d-qsar.com [Sep 2016 – Current]

City: Rome

Country: Italy

Development of a Web Application for Pharmaceutical Chemistry

Machine Learning Engineer

Rome Center for Molecular Design [Sep 2016 – Current]

City: Rome

Country: Italy

Participation with the research group developing web apps and developing Machine Learning models for Pharmaceutical Chemistry

Visiting Scholar

UNIVERSITY OF NORTH CAROLINA - ESHELMAN SCHOOL OF PHARMACY [Aug 2019 – Sep 2019]

City: Chapel Hill

Country: United States

Application of Machine Learning to the field of Pharmaceutical Chemistry for Drug Discovery

Junior Scholarship

DEPT. OF COMPUTER, CONTROL AND MANAGEMENT ENGINEERING - SAPIENZA UNIVERSITY OF ROME [

Jul 2019 – Oct 2019]

City: Rome

Country: Italy

Analysis of Scientific Production through Google Scholar and Scopus

Secretary Assistant

DEPT. OF COMPUTER, CONTROL AND MANAGEMENT ENGINEERING - SAPIENZA UNIVERSITY OF ROME [

Jan 2018 – May 2021]

City: Rome

Country: Italy

Secretary Assistant at the Department of Computer, Control and Management Engineering "Antonio Ruberti" of Sapienza University of Rome, Rome (Italy)

EDUCATION AND TRAINING

National PhD in Artificial Intelligence

SAPIENZA UNIVERSITY OF ROME [Nov 2021 – Current]

- Machine Learning
- Explainable AI
- Reinforcement Learning
- Image Recognition
- Graph Neural Networks

Master's Degree in Artificial Intelligence and Robotics

SAPIENZA UNIVERSITY OF ROME [Sep 2019 – May 2021]

Final grade: 110/110 with honors

Thesis: Explainable AI in Drug Design: Perturbation based molecular attributions using Graph Convolutional Networks

- Machine Learning
- Neural Networks
- Reinforcement Learning
- Machine Learning for Signal Processing
- Data Mining
- Vision and Perception
- Robotics
- Autonomous and Mobile Robotics
- Probabilistic Robotics
- Artificial Intelligence

Selected student for the **Excellence Programme**.

Bachelor's Degree in Computer and Control Engineering

SAPIENZA UNIVERSITY OF ROME [Sep 2016 – Mar 2019]

Final grade: 110/110 with honors

Thesis: Deep Deterministic Policy Gradient for Regularity Rally in TORCS Simulator

- Machine Learning
- Neural Networks
- Reinforcement Learning
- Machine Learning for Signal Processing
- Data Mining
- Vision and Perception
- Robotics
- Autonomous and Mobile Robotics
- Probabilistic Robotics
- Artificial Intelligence

Best Student according to Sapienza "Exam Bonus" Award

Selected student for the **Excellence Programme**.

LANGUAGE SKILLS

Mother tongue(s): **Italian**

Other language(s):

English

LISTENING C1 READING C1 WRITING B2

SPOKEN PRODUCTION B2 SPOKEN INTERACTION B2

French

LISTENING A1 READING A1 WRITING A1

SPOKEN PRODUCTION A1 SPOKEN INTERACTION A1

DIGITAL SKILLS

Programming Languages

Python / C and C++ / SQL / MATLAB / Django / CSS / HTML / JavaScript / R and RStudio / VisualBasic / Bash and DOS / PHP / Assembly IA32 / Objective-C / Java and Scala

Frameworks

Octave / SK-Learn, Tensorflow, Torch and MXNet / Android Java / Docker / RDKit and OpenBabel / OpenCV and PCL / ROS

Software

Office / Windows and Linux / Joomla, Wordpress, Drupal / Git

DRIVING LICENCE

Driving Licence: B

CONFERENCES AND SEMINARS

Joint EurAI Advanced Course on AI, TAILOR Summer School 2022

[University of Barcelona, Jun 2022]

AI&Society PhD School 2022

[University of Pisa, Jun 2022]

COURSES

Docker for Developers

[Jun 2019]

CyberChallenge.IT 2018

[Mar 2018 – Jun 2018]

- 4° Place at Regional Competition

- Qualified for National Competition

General English Course at an Upper Intermediate Level

[Jun 2014]

HTML, CSS, PHP e MySQL Course

[2013]

CERTIFICATIONS

ACTFL Oral Proficiency Interview by Computer (OPIc) - Advanced Mid Level

[2019]

Cambridge English: Preliminary (PET) - B1 Level

[2012]

DELTA - A1 Level

[2010]

PUBLICATIONS

[Prototype-based Interpretable Graph Neural Networks](#)

[2022]

10.1109/TAI.2022.3222618

Alessio Ragno, Biagio La Rosa, Roberto Capobianco

IEEE Transactions on Artificial Intelligence

[Ligand-based and structure-based studies to develop predictive models for SARS-CoV-2 main protease inhibitors through the 3d-qsar.com portal](#)

[2022]

10.1007/s10822-022-00460-7

Eleonora Proia, Alessio Ragno, Lorenzo Antonini, Manuela Sabatino, Milan Mladenovič, Roberto Capobianco, Rino Ragno

Journal of Computer-Aided Molecular Design

Machine Learning Data Augmentation as a Tool to Enhance Quantitative Composition-Activity Relationships of Complex Mixtures. A New Application to Dissect the Role of Main Chemical Components in Bioactive Essential Oils

10.3390/molecules26206279

Alessio Ragno, Anna Baldisserotto, Lorenzo Antonini, Manuela Sabatino, Filippo Sapienza, Erika Baldini, Raissa Buzzi, Silvia Vertuani, Stefano

Molecules

HONOURS AND AWARDS

Best Graduate Student 2021

SAPIENZA UNIVERSITY OF ROME [Mar 2023]

EuroQSAR Travel Grant for the 23rd European Symposium on Quantitative Structure-Activity Relationship

EuroQSAR [Sep 2022]

EurAI Travel Grant for the Joint EurAI Advanced Course on AI, TAILOR Summer School 2022

EurAI and TAILOR [Jul 2022]