DR. GIACOMO FRISONI

I'm a PhD Student in Computer Science and Engineering at the University of Bologna. I investigate how to combine language models and structured knowledge for Natural Language Processing and Understanding in Health domains.

// CONTACT

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Via dell'Università, 50
47522 Cesena (FC), Italy
+39 331 2718059 (personal)
Personal Website
Academic Website

Research and academy
0000-0003-1104-2014
DBLP
Google Scholar
Semantic Scholar
Scopus
DISI UniBo NLP Research Group

Development
@GiacomoFrisoni
@DISI UniBo NLP
@gfrisoni

Social and misc
Giacomo Frisoni

// CITIZENSHIP

Italy

// LANGUAGES

Italian — Mother language
English — B2 level

// RESEARCH INTERESTS

Neuro-Symbolic AI
Natural Language Processing
Natural Language Understanding
Semantic Parsing
Knowledge Graphs
Knowledge Representation and Reasoning
Graph Neural Networks
Deep Representation Learning
Explainable AI
AI for Health informatics

// EDUCATION

10/2020 - 10/2023
CESENA (FC), ITALY

Ph.D., Computer Science and Engineering

Department of Computer Science and Engineering, University of Bologna

- Ministerial scholarship
- Supervisor: Gianluca Moro
- Tutor: Antonella Carbonaro
- Area of study: Knowledge Extraction and Injection for Natural Language Understanding

09/2017 - 03/2020
CESENA (FC), ITALY

M.S., Computer Science and Engineering

University of Bologna

- Cumulative GPA: 4.0 (transcript)
- Graduation score: 110/110 *cum Laude*
- Graduation class: Computer Engineering
- Thesis topic: *A new unsupervised methodology of descriptive text mining for knowledge graph learning*
- Supervisor: Gianluca Moro
- Co-Supervisor: Antonella Carbonaro
- Area of study: Text Mining

09/2014 - 10/2017
CESENA (FC), ITALY

B.S., Computer Science and Engineering

University of Bologna

- Cumulative GPA: 4.0 (transcript)
- Graduation score: 110/110 *cum Laude*
- Graduation class: Computer Engineering
- Thesis topic: *Design and development of a software system for studying and researching rare diseases*
- Supervisor: Dario Maio
- Area of study: Databases

09/2009 - 07/2014
RIMINI (RN), ITALY

Scientific High School

ITIS Leonardo Da Vinci

- Final score: 100/100 *cum Laude*
- Member of the National Register of Excellence
- Focus on Cryptography (Bletchley Park Visitor)

// EXPERIENCE

09/2022 - 12/2022
GLASGOW, SCOTLAND

Postgraduate Visiting Researcher

▸ Terrier Team, Information, Data & Analysis Section, School of Computing Science, University of Glasgow

- Supervisor: Zaiqiao Meng
- Area of study: Dense Subgraph Retrieval for Open-domain Biomedical Question Answering

03/2020 - 10/2020
CESENA (FC), ITALY

Pre-doctoral Researcher

▸ Department of Computer Science and Engineering, University of Bologna

- Supervisors: Gianluca Moro, Antonella Carbonaro
- Area of study: Unsupervised Corpus-Level Phenomena Explanation and Knowledge Graph Learning

08/2020 - 08/2020
VIRTUAL

Program Attendee at The Cornell, Maryland, Max-Planck Pre-doctoral Research School

▸ Max Planck Institute for Software Systems

I was granted the opportunity to be one of ≈100 students internationally selected to participate in the Cornell, Maryland, Max Planck Pre-doctoral Research School in 2020, Saarbrücken, Germany (moved online due to COVID-19 pandemic). During this period, I attended lectures by top scientists and faculty members from participating institutions on various cutting-edge topics, including scalable machine learning and deep learning adversarial attacks. Certificate.

01/2017 - 01/2020
SMART WORKING
ROME (RM), ITALY

Software Developer

▸ CSEN, National Educational Sports Center

Designed, developed, and deployed the software system used in Italy by CSEN for judging taekwondo Poomsae during national competitions. Main use of C# and Kotlin.

03/2017 - 05/2017
CESENA (FC), ITALY

Trainee Student

▸ Smart City Laboratory

Designed, developed, and deployed a Microsoft Azure SQL database for supporting the investigation of rare diseases on the national territory.

06/2013 - 08/2013
02/2013 - 02/2013
06/2012 - 08/2012
RIMINI (RN), ITALY

Trainee Student

▸ Esa Software (now Team System)

Advanced use of .NET, Windows Presentation Foundation, and C#.

// ACHIEVEMENTS, HONORS, AND AWARDS

Best Student Paper Award (07/2022)
11th International Conference on Data Science, Technology and Applications (DATA 2022)
In 2022, my co-authored paper "Enhancing Biomedical Scientific Reviews Summarization with Graph-based Factual Evidence Extracted from Papers" has been selected as the best contribution at DATA (20% acceptance rate, double-blind peer review), resulting in a Springer extension. Certificate.

Con.Scienze 2020 Award Winner (02/2021)
National Conference of the Presidents and Directors of Science and Technology
National award—with only one nomination per university department—for having written one of the ten best scientific research works during the master's thesis.

PhD Call First Position (07/2020)
First position in the ranking out of 132 participants for the PhD call in Computer Science and Engineering, University of Bologna.

Best Paper Award (03/2020)
9th International Conference on Data Science, Technology and Applications (DATA 2020)
In 2020, my first co-authored paper "Learning Interpretable and Statistically Significant Knowledge from Unlabeled Corpora of Social Text Messages: A Novel Methodology of Descriptive Text Mining" has been selected as the best contribution at DATA (14% acceptance rate, double-blind peer review), resulting in a Springer extension. Certificate.

High School Awards (2014)
Awards as the best student of ITIS Leonardo Da Vinci Scientific High School according to career results:

- winner of the Guido Paolucci Scholarship, BCC of Gradara;
- certificate of Merit and Scholarship, Banca Malatestiana;
- winner of the "Talent Search" project, a training course concerning the programming of microcontrollers, Confindustria Rimini;
- winner of the "ITIS-CNA CAR competition: young inventors", best industrial project, educational software about Cryptography.

// PRE-SKILLS*

Leadership	●●●●●
Team Work	●●●●○
Communication	●●●●○
Organizing	●●●●●
Creativity	●●●●○
Motivation	●●●●●
Problem Solving	●●●●○

// PRO-SKILLS*,†

Programming Languages

Python	●●●●●
R	●●●●●
Scala	●●●●●
Java	●●●●●
C#	●●●●●
Bash	●●●●○
Prolog	●●●○○

Other Languages

LaTeX	●●●●●
Markdown	●●●●●
HTML, (S)CSS	●●●●○

ML Frameworks

PyTorch	●●●●○
Jax/Flax	●●●○○
TensorFlow	●●○○○
Keras	●●○○○

Operating Systems

Windows	●●●●●
Linux	●●●●○
MacOS	●●●○○

Software & Tools

Visualization	●●●●○
(e.g. matplotlib, ggplot, plotly, ...)	
Data handling/analysis	●●●●●
(e.g. numpy, scipy, pandas, scikit-learn, ...)	
ML monitoring	●●●●●
(e.g. W&B, TensorBoard, ...)	
NLP libraries	●●●●●
(e.g. HuggingFace, spaCy, ...)	
SLURM & Docker	●●●○○

* Average on anonymous scores (from 0 to 5, rounded down) requested from the people I collaborated with (colleagues, teachers, supervisors, and professionals outside the IT context)

† The proficiency skill evaluation scale has the following meaning

○○○○○	No Experience
●○○○○	Can read and make small changes to existing programs
●●○○○	Can utilize basic features without much help
●●●○○	Can develop medium programs and do non-trivial troubleshooting
●●●●○	Can develop large programs using all basic and advanced features
●●●●●	Understanding and (appropriate) usage of most lesser-known features

// REFEREES

List of references available to contact:

Prof. Gianluca Moro
gianluca.moro@unibo.it
M.S. and Ph.D. Thesis Supervisor

Prof. Antonella Carbonaro
antonella.carbonaro@unibo.it
M.S. Thesis Co-Supervisor and Ph.D. Tutor

Dr. Zaiqiao Meng
zaiqiao.meng@glasgow.ac.uk
Visiting Researcher Supervisor

// CERTIFICATES

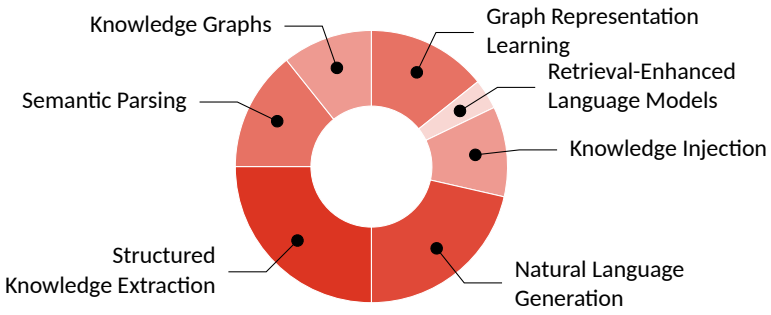
- **Natural Language Processing Specialization**
  Coursera, 10/2020 – /
  ID NV29J2BMGADP
- **Natural Language Processing with Attention Models**
  Coursera, 10/2020 – /
  ID VMQSUQBGQJPM
- **Natural Language Processing with Classification and Vector Spaces**
  Coursera, 08/2020 – /
  ID QK8EQ2GF87YN
- **Natural Language Processing with Probabilistic Models**
  Coursera, 08/2020 – /
  ID QPALRXRLYWW5
- **Natural Language Processing with Sequence Models**
  Coursera, 08/2020 – /
  ID 276YSYDTCSLH

// VOLUNTEERING

- **AMAE Onlus – National Association for Esophageal Achalasia**, 2019 – Today
  In September 2016, I was diagnosed with a rare disease called "Esophageal Achalasia". Since then, I have dedicated myself to merging my NLP skills and patient-centered experiences to create tools in medical and biomedical domains to advance research.
  - Member of the board of directors
  - Representative of the IT sector
  - Data Scientist
- **Streamlit**, December 2022 – Today
  I was selected as a member of the first Streamlit Student Ambassador cohort, Education Program (<50 students worldwide).
- **HuggingFace**, June 2022 – December 2022
  I was selected as a member of the first HuggingFace Student Ambassador program (<100 students worldwide, from all kinds of backgrounds).

// PUBLICATIONS

Author of 13 papers. Citations: 85, h-Index: 6 (Google Scholar metrics as of 2023-03-24). Main keywords and research areas are reported below.



Contributions in Conference Proceedings Sorted By Time

Cogito Ergo Summ: Abstractive Summarization of Biomedical Papers via Semantic Parsing Graphs and Consistency Rewards
G. Frisoni, P. Italiani, S. Salvatori, G. Moro
2023 Proceedings of the Thirty-Seventh AAAI Conference on Artificial Intelligence, AAAI 2023, Washington, DC, USA, February 7–14, pp. 1–9, AAAI Press (*19.6% acceptance rate*)

BioReader: a Retrieval-Enhanced Text-to-Text Transformer for Biomedical Literature
G. Frisoni, M. Mizutani, G. Moro, L. Valgimigli
2022 Proceedings of the 2022 Conference on Empirical Methods in Natural Language Processing, EMNLP 2022, Abu Dhabi, United Arab Emirates, December 7–11, 2022, pp. 5770–5793, Association for Computational Linguistics (*22.1% acceptance rate*)

Enhancing biomedical scientific reviews summarization with graph-based factual evidence extracted from papers
G. Frisoni, P. Italiani, F. Boschi, G. Moro
2022 Proceedings of the 11th International Conference on Data Science, Technology and Applications, DATA 2022, Lisbon, Portugal, July 11–13, 2022, pp. 168–179, ScitePress (*20% acceptance rate*)

Text-to-Text Extraction and Verbalization of Biomedical Event Graphs
G. Frisoni, G. Moro, L. Balzani
2022 Proceedings of the 29th International Conference on Computational Linguistics, COLING 2022, Gyeongju, Republic of Korea, October 12–17, pp. 3465–3479, International Committee on Computational Linguistics (*28% acceptance rate*)

NLG-Metricverse: An End-to-End Library for Evaluating Natural Language Generation
G. Frisoni, A. Carbonaro, G. Moro, A. Zammarchi, M. Avagnano
2022 Proceedings of the 29th International Conference on Computational Linguistics, COLING 2022, Gyeongju, Republic of Korea, October 12–17, pp. 3465–3479, International Committee on Computational Linguistics (*28% acceptance rate*)

Phenomena Explanation from Text: Unsupervised Learning of Interpretable and Statistically Significant Knowledge
G. Frisoni, G. Moro
2020 DATA (Revised Selected Papers), Communications in Computer and Information Science, vol. 1446, pp. 293–318, Springer

Unsupervised Descriptive Text Mining for Knowledge Graph Learning
G. Frisoni, G. Moro, A. Carbonaro
2020 Proceedings of the 12th International Joint Conference on Knowledge Discovery, Knowledge Engineering and Knowledge Management, IC3K 2020, Volume 1: KDIR, Budapest, Hungary, November 2–4, 2020, vol. 1, pp. 316–324, SciTePress (*21% acceptance rate*)

Learning Interpretable and Statistically Significant Knowledge from Unlabeled Corpora of Social Text Messages: A Novel Methodology of Descriptive Text Mining

G. Frisoni, G. Moro, A. Carbonaro

2020 Proceedings of the 9th International Conference on Data Science, Technology and Applications, DATA 2020, Lieusaint, Paris, France, July 7–9, 2020, pp. 121–134, SciTePress (*14% acceptance rate*)

Journal Publications Sorted By Time

Comprehensive Analysis of Knowledge Graph Embedding Techniques Benchmarked on Link Prediction

I. Ferrari, **G. Frisoni**, P. Italiani, G. Moro, C. Sartori

2022 Electronics 11 (23), 3866

Human Being Detection from UWB NLOS Signals: Accuracy and Generality of Advanced Machine Learning Models

G. Moro, F. Di Luca, D. Dardari, **G. Frisoni**

2021 Sensors 22 (4), 1656

Unsupervised Event Graph Representation and Similarity Learning on Biomedical Literature

G. Frisoni, G. Moro, G. Carlassare, A. Carbonaro

2021 Sensors, vol. 22 (1)

A Survey on Event Extraction for Natural Language Understanding: Riding the Biomedical Literature Wave

G. Frisoni, G. Moro, A. Carbonaro

2021 IEEE Access, vol. 9, pp. 160721–160757

Contributions in Forums Sorted By Time

Towards rare disease knowledge graph learning from social posts of patients

G. Frisoni, G. Moro, A. Carbonaro

2020 Research and Innovation Forum 2020—Disruptive Technologies in Times of Change, RIIFORUM 2020, Athens, Greece, 15–17 April 2020, pp. 577–589, Springer

// MOTTOS

> ***While technology is important, it's what we do with it that truly matters.***
>
> *– Muhammad Yunus, Nobel Peace Prize Winner*

> ***Language is at the heart of human intelligence. It therefore is and must be at the heart of our efforts to build artificial intelligence. No sophisticated AI can exist without mastery of language.***
>
> *– Rob Towes, Forbes*

> ***The real voyage of discovery consists not in seeking new landscapes, but in having new eyes.***
>
> *– Marcel Proust*

> ***We especially need imagination in science. It is not all mathematics, nor all logic, but is somewhat beauty and poetry.***
>
> *– Maria Mitchell*

// SCIENTIFIC ACTIVITIES

Participation in Research Groups

DISI UniBo NLP Research Group, 03/2020 – today,
The primary research group I worked with since my M.S. degree. The DISI UniBo NLP group—led by prof. Gianluca Moro—includes a team of Ph.D. students and researchers who are part of the Department of Computer Science and Engineering (DISI) of the University of Bologna, Italy. We pursue a vision focused on proposing original state-of-the-art solutions for crucial NLP/NLU tasks, following innovative trends like retrieval-enhanced language models, structured knowledge↔language model integration, graph neural networks, knowledge representation learning, cross-modal AI, XAI. Our papers have been accepted to top-tier journals and conferences, including AAAI, EMNLP, ACL, COLING. We also have competitive hardware resources (e.g., +6 NVIDIA GeForce RTX 3090 Turbo 24GB) and powerful servers to support our projects. From April 2023, I co-manage the research group's SLURM cluster.

Selected papers from the group

- G. Moro, L. Ragazzi and L. Valgimigli, "Carburacy: Summarization Models Tuning and Comparison in Eco-Sustainable Regimes with a Novel Carbon-Aware Accuracy.," In Proceedings of the 37th AAAI Conference on Artificial Intelligence, pp. 1–9. 2023.
- G. Moro, L. Ragazzi, L. Valgimigli, and Davide Freddi, "Discriminative Marginalized Probabilistic Neural Method for Multi-Document Summarization of Medical Literature," In Proceeding of the 60th Annual Meeting of the Association for Computational Linguistics (Volume 1: Long Papers), pp. 180–189. 2022.
- G. Moro and L. Ragazzi, "Semantic Self-Segmentation for Abstractive Summarization of Long Documents in Low-Resource Regimes," In Proceedings of the 36th AAAI Conference on Artificial Intelligence, vol. 36, no. 10, pp. 11085–11093. 2022.
- G. Moro and L. Valgimigli, "Efficient self-supervised metric information retrieval: A bibliography based method applied to COVID literature," Sensors 21, no. 19 (2021): 6430.

Research Projects

Social media analysis centered on rare bone disease patients
Project selected for financing by the Department of Rare Skeletal Disorders, Rizzoli Orthopaedic Institute, Bologna

Speaker (Paper Presentation)

EMNLP 2022, Abu Dhabi, United Arab Emirates, In-person
BioReader: a Retrieval-Enhanced Text-to-Text Transformer for Biomedical Literature. Certificate.

DATA 2022, Lisbon, Portugal, Virtual
Enhancing Biomedical Scientific Reviews Summarization with Graph-Based Factual Evidence Extracted from Papers. Certificate.

COLING 2022, Gyeongju, Republic of Korea, Virtual

- NLG-Metricverse: An End-to-End Library for Evaluating Natural Language Generation. Certificate.
- Text-to-Text Extraction and Verbalization of Biomedical Event Graphs. Certificate.

DATA 2020, Paris, France, Virtual
Learning Interpretable and Statistically Significant Knowledge from Unlabeled Corpora of Social Text Messages: A Novel Methodology of Descriptive Text Mining. Certificate.

Session Chair

DATA 2022, Lisbon, Portugal, Virtual
Session 1A "Neural Network Applications". Certificate.

Reviewing for Conferences

Extended Semantic Web Conference, ESWC 2023

Association for the Advancement of Artificial Intelligence, AAAI 2023

Reviewing for International Journals

MDPI Information (ISSN: 2078-2489), 2023

MDPI Applied Sciences (ISSN: 2076-3417), 2022

Expert Systems (ISSN: 1468-0394), 2022

Semantic Web Journal (ISSN: 1570-0844), 2022

// TEACHING ACTIVITIES

Seminars

Graph Neural Networks and Graph Representation Learning for Natural Language Understanding
"Text Mining" M.S. course, Computer Science and Engineering, University of Bologna, December 15, 2022

- **Graph Neural Networks and Graph Representation Learning**
  "Data Mining, Text Mining and Big Data Analytics" M.S. course, Artificial Intelligence, University of Bologna, December 14, 2022
- **Retrieval-Enhanced Language Models and Semantic-Driven Summarization for Biomedical Domains**
  TerrierTeam Presentation, University of Glasgow, School of Computing Science, October 10, 2022.
- **Natural Language Processing and Understanding: Transformers and Graph Neural Networks for Financial Applications**
  Seminar organized and paid by the Bologna Business School (BBS) as part of a refresher course for companies, July 06–11, 2022
- **Neuro-Symbolic AI for Natural Language Understanding from Text in Health Domains**
  "Data Intensive Applications" B.S. course, Artificial Intelligence, University of Bologna, April 27, 2022
- **Neuro-Symbolic AI for Natural Language Understanding in Health Domains**
  "Semantic Web" M.S. course, Artificial Intelligence, University of Bologna, April 4, 2022
- **A gentle introduction to Natural Language Understanding from Text: from Phenomena Explanation to Event Extraction and Event Graph Embedding**
  "Data Mining, Text Mining and Big Data Analytics" M.S. course, Artificial Intelligence, University of Bologna, December 10, 2021
- **A look at Knowledge Graphs, Ontologies and Semantic Similarity**
  "Semantic Web" M.S. course, Computer Science and Engineering, University of Bologna, March 22, 2021
- **POIROT: Phenomena Explanation from Text**
  "Text Mining" M.S. course, Computer Science and Engineering, University of Bologna, December 2, 2020
- **Knowledge Graph Learning from Text**
  "Semantic Web" M.S. course, Computer Science and Engineering, University of Bologna, March 26, 2020
- **Introduction to Azure Cosmos DB**
  "web Services and Applications" M.S. course, Computer Science and Engineering, University of Bologna, March, 2018

Co-supervision of Bachelor Students

- **Generation of Factual Summaries via Semantic Parsing**
  Candidate: Luca Grandi, Supervisor: Gianluca Moro, Other Co-supervisor: Luca Ragazzi. University of Bologna, Computer Science and Engineering. March, 2023.
- **Automatic Annotation of Relevant Tokens for Abstractive Dialogue Summarization**
  Candidate: Federico Raffoni, Supervisor: Gianluca Moro. University of Bologna, Computer Science and Engineering. March, 2023.
- **AMRScore: Automatically Evaluating Consistency of Abstractive Summaries via Semantic Parsing**
  Candidate: Luca Cantagallo, Supervisor: Antonella Carbonaro. University of Bologna, Computer Science and Engineering. March, 2023.
- **PRISM: Refracting Probability Distributions into Abstractive Summaries through Decoding Strategies**
  Candidate: David Cohen, Supervisor: Antonella Carbonaro. University of Bologna, Computer Science and Engineering. December, 2022.
- **Study and Application of Motor Activity Classification Techniques with Deployment on Smartphones**
  Candidate: William Carletti, Supervisor: Gianluca Moro. University of Bologna, Computer Science and Engineering. December, 2021.
- **Unsupervised Representation and Similarity Learning for Event Graphs mentioned in the Biomedical Literature**
  Candidate: Eleonora Bertoni, Supervisor: Gianluca Moro. University of Bologna, Computer Science and Engineering. December, 2021.
- **Study and Experimentation of Advanced Metrics for the Evaluation of Natural Language Generation Models**
  Candidate: Marco Avagnano, Supervisor: Antonella Carbonaro. University of Bologna, Computer Science and Engineering. December, 2021.
- **Verbalization of Biomedical Events expressed in the Scientific Literature: Controlled Generation of Natural Language from Semantic Graphs by means of a Text-to-Text Transformer**
  Candidate: Lorenzo Balzani, Supervisor: Gianluca Moro. University of Bologna, Computer Science and Engineering. October, 2021.
- **Time-Evolving Knowledge Graphs based on Poirot: Dynamic Representation of Patients' Voices**
  Candidate: Samuele Ceroni, Supervisor: Antonella Carbonaro. University of Bologna, Computer Science and Engineering. March, 2021.
- **Semantic Similarity and Clustering of Concepts from the Medical Literature represented with Language Models and Event-Based Knowledge Graphs**
  Candidate: Giulio Carlassare, Supervisor: Antonella Carbonaro, Other Co-supervisor: Gianluca Moro. University of Bologna, Computer Science and Engineering. March, 2021.
- **Automatic Translation of Social Documents shared by Rare Patients**
  Candidate: Anna Fabris, Supervisor: Antonella Carbonaro. University of Bologna, Computer Science and Engineering. October, 2020.

- **Extraction of Medical Correlations from Unlabeled Social Posts with Neural Language Models and Data Clustering**
  Candidate: Alessandro Lombardini, Supervisor: Gianluca Moro. University of Bologna, Computer Science and Engineering. October, 2020.

Co-supervision of Master Students

- **Subgraph Retrieval for Biomedical Open-Domain Question Answering: Unlocking the Knowledge Graph Embedding Power**
  Candidate: Faisal Ramzan, Supervisor: Claudio Sartori, Other Co-supervisor: Gianluca Moro. University of Bologna, Artificial Intelligence. March, 2023.
- **Subgraph Retrieval for Biomedical Open-Domain Question Answering: Predicting Relational Paths with Language Models**
  Candidate: Mattia Achilli, Supervisor: Antonella Carbonaro, Other Co-supervisor: Gianluca Moro. University of Bologna, Computer Science and Engineering. March, 2023.
- **Novel Text-to-Text Retrieval-Enhanced Transformer for Biomedical Literature**
  Candidate: Miki Mizutani, Supervisor: Gianluca Moro. University of Bologna, Artificial Intelligence. December, 2022.
- **Bio-QA-GNN: Reasoning with Language Models and Knowledge Graphs for Interpretable Biomedical Question Answering**
  Candidate: Enrico Gnagnarella, Supervisor: Antonella Carbonaro. University of Bologna, Computer Science and Engineering. December, 2022.
- **Guess The Link: Deciphering the Best Knowledge Graph Completion Techniques in Dense Spaces**
  Candidate: Ilaria Ferrari, Supervisor: Claudio Sartori, Other Co-supervisor: Gianluca Moro. University of Bologna, Computer Engineering. December, 2022.
- **Edge-Aware Graph Attention Networks: Joint Reasoning on Text and Knowledge Graphs for Biomedical Question Answering**
  Candidate: Francesco Boschi, Supervisor: Gianluca Moro. University of Bologna, Computer Science and Engineering. March, 2022.
- **Event-Augmented Summarization of Biomedical Scientific Reviews**
  Candidate: Paolo Italiani, Supervisor: Gianluca Moro. University of Bologna, Statistical Sciences. March, 2022.
- **Generate Explanations of Medical Concept Sets made up of Correlated Terms extracted from Patient Social Posts with Linear Transformers**
  Candidate: Alessia Ventani, Supervisor: Gianluca Moro. University of Bologna, Computer Science and Engineering. March, 2021.
- **Study and Implementation of the Graphic Interface for a Health Data Application**
  Candidate: Matteo Sertori, Supervisor: Antonella Carbonaro, Other Co-supervisor: Gianluca Moro. University of Bologna, Computer Science and Engineering. October, 2020.

// SELECTED EXTRA-RESEARCH PROJECTS

- **Chess Multiplayer**
  Chess application with multiplayer features | Scala, Prolog, Akka, MongoDB. Use of Scrum as Agile software development methodology (with Product Owner role inside the team). Adoption of advanced software quality techniques and Continuous Integration.
  08/2018 – 10/2018 , , x4 contributors
- **Drowsiness Detection System**
  Driver drowsiness detection system with a behavioral measure based on eyes closure | Raspberry Pi, Python, OpenGL, Computer Vision models.
  02/2019 – 04/2019 , x2 contributors
- **Big Data and NLP models for Esophageal Achalasia Social Media Analysis**
  Topic modeling and phenomena explanation for food or treatment low opinion score on top of ≈1.500.000 unlabeled posts shared by patients and caregivers in social media communities | Named Entity Recognition, Named Entity Linking, Sentiment Analysis | HDFS, MapReduce, Spark, SparkSQL YARN, Hive.
  08/2019 – 10/2019

March 25, 2023