
Work Experiences & Projects

- February, 2023 – Now **Postdoc**, *MilaNLP Lab, Bocconi University, Italy*, Focusing on NLP, conversational agents and applied ML.
Main activity: Development of data-driven solutions to improve the role of demography in conversational AI.
- April, 2022 – February 2023 **Research Fellow**, *I3lab, Politecnico di Milano, Italy*, Focusing on the application of innovative interactive technologies and applications in various domains such as health, learning, industry, and retail.
Main activity: Development of data-driven solutions to improve the relationship of citizens with the legal systems.
- October, 2021 – February 2022 **Visiting Researcher**, *ETH Zurich, Switzerland*, Focusing on chatbots in healthcare.
Collaborating with Centre for Digital Health Interventions (CDHI).
Main activity: Development of a configurable conversational agent for coaching and well being scenarios
- 2018 – 2021 **Research Assistant**, *POLITECNICO DI MILANO | HOC-LAB, Milan, Italy*.
Research assistant in HOC-LAB, an interdisciplinary lab at the Department of Electronics and Information of Politecnico di Milano, specialized in multimedia, multichannel communication.
Main activities: Designing a software architecture and developing a framework for building educational chatbots (NLP Engineer) for school, higher education, and training employees in industry 4.0.
- April – September 2021 **NLP Engineer & Project owner**, *POLITECNICO DI MILANO, Milan, Italy*.
NLU Chatbot.
Main activities: Designing a NLU component with API for a chatbot's architecture with NLP (BERT model) and TensorFlow Serving.
- 2017 – 2018 **Data Scientist**, *NAZARBAZAR COMPANY, Tehran, Iran*.
Designing systems based on Machine Learning, Statistical Modeling and Data Visualization in order to provide personalized contents and experiences for customers.
- 2016 – 2017 **Data Scientist and Project Owner**, *FREELANCER, Tehran, Iran*.
'Design & implementing fraud detection system'.
Developing fraud and misconduct detection solutions based on bank's customers and employees transactional data, mathematical algorithms and organizational best practices.

Education

- November, 2018 – April, 2022 **Ph.D. Information Technology Engg**, *Politecnico di Milano, Italy*.
Main subjects: Mobile Assistants, Bots, Conversational AI, and Data Analytics.
Scholarshipped by EIT Digital (European Institute of Innovation and Technology); IBM Italia.
Thesis: "Data-Driven Educational Chatbots".
Representative courses:
 - Machine Learning For Non-Matrix Data
 - Complex Networks
- October, 2013 – September, 2016 **M.Sc. Health Information Technology Engg**, *University of Tehran, Iran*.
Main subjects: Machine learning, Data Analytic, Programming, Health Information Technology, Disease modeling and Simulation.
Thesis: "Analytical methods for minimizing the burden of type 2 diabetes based on Markov Model".
Representative courses:
 - Artificial Neural Networks
 - Probabilistic Graphical Models
- October, 2008 – September, 2012 **B.Sc. Information Technology Engg**, *Shiraz University of Technology, Iran*.

Technical skills

Programming Languages	Python, MATLAB, R, SQL.
Technologies and Packages	SciKit-Learn, Pandas, NumPy, SciPy, Matplotlib, Plotly, NLTK, TensorFlow, Pytorch.
Web Framework	CSS, HTML, XML, MD, LaTeX.
Enviroments	Django, Docker.
	Power BI, Tableau.

Leadership Certificates

- November 2019 **IDSL Research to Value Seminar**. EIT Digital doctoral school course at Madrid, Spain.
- October 2020 **IDSL Business Modelling**. EIT Digital doctoral school course at Rennes, France.
- November 2020 **IDSL Business Development**. EIT Digital doctoral school course at Rennes, France.
- September 2021 **IDSL Business Growth**. EIT Digital doctoral school course at Trento, Italy.
- November 2021 **IDSL Business Change**. EIT Digital doctoral school course at Helsinki, Finland.

Teaching Experience

- 2018 – 2019 **Teaching Assistant in Digital Technologies**, POLITECNICO DI MILANO, Italy.
Main activity: Teaching Python programming to Management Engg students at Politecnico di Milano.
- 2018 – 2019 **Teaching Assistant in Geoinformatics**, POLITECNICO DI MILANO, Italy.
Main activity: Teaching Python programming and SQL to Geoinformatics students.
- 2015 – 2016 **Teaching Assistant in Biomedical Signal Processing**, UNIVERSITY OF TEHRAN, Iran.
Main activity: Python and MATLAB.
- 2014 – 2015 **Teaching Assistant in Digital Image Processing**, UNIVERSITY OF TEHRAN, Iran.
Main activity: Python and MATLAB.

Honors

- November 2018 **Postgraduate Research Scholarship Award** for Industrial PhD between Politecnico di Milano, EIT digital, and IBM.
- 2013 **Full Scholarship** of University of Tehran in M.Sc.
- 2008 **Full Scholarship** of Shiraz University of Technology in B.Sc.

Publications

- Roein, D.**; Paolini, P. and Pernici, B. (2022). Educational Chatbots: A Sustainable Approach for Customizable Conversations for Education. In Proceedings of the 14th International Conference on Computer Supported Education - Volume 1, ISBN 978-989-758-562-3, ISSN 2184-5026, pages 314-321.
- Roein, D.**, Bianchini, D., Leotta, F. et al. aCHAT-WF: Generating conversational agents for teaching business process models. *Softw Syst Model* (2021). <https://doi.org/10.1007/s10270-021-00925-7>.
- Roein, D.** & Paolini, P. (2021). Adaptive Conversations for Adaptive Learning TalkyTutors: sustainable chatbots as tutors. In T. Bastiaens (Ed.), Proceedings of EdMedia + Innovate Learning (pp. 1020-1029). United States: Association for the Advancement of Computing in Education (AACE). Retrieved July 27, 2021 from <https://www.learntechlib.org/primary/p/219783/>.
- D. Roein**, D. Bianchini, F. Leotta, M. Mecella, P. Paolini, and B. Pernici, Chatting about processes in digital factories: A model-based approach, in International Conference on Enterprise, Business-Process and

Information Systems Modeling, 2020. BPMDS/EMMSAD@CAiSE 2020: Lecture Notes in Business Information Processing. (pp. 70-84)

5. **Rooein, Donya**, and Paolini. Paolo. " Adaptive Conversations for Adaptive Learning: Sustainable Development of Educational Chatbots." Position paper presented at CONVERSATIONS 2020 – the 4th International Workshop on Chatbot Research, an online virtual event hosted by the University of Amsterdam, the Netherlands, November 23-24.
6. Negri, V., Scuratti, D., Agresti, S., **Rooein, D.**, Shankar, A. R., Marquez, J. L. F., ... & Pernici, B. (2020). Image-based Social Sensing: Combining AI and the Crowd to Mine Policy-Adherence Indicators from Twitter. ICSE-SEIS 2021: 92-101.
7. PAOLINI, PAOLO, **DONYA ROOEIN**, and BARBARA PERNICI. Usability for Chatbot Conversations. Human-Centered AI : (pp. 91-113).
8. **Donya Rooein**. 2019. Adaptive Chatbots Acting Like Tutor: Understanding and Support Learning. In Proceedings of ACM Celebration of Women in Computing: womENCourage 2019. ACM, , New York, NY, USA, 1 page.
9. Di Blas, N., Lodi, L., Paolini, P., Pernici, B., Raspa, N., **Rooein, D.** & Renzi, F. (2019). Sustainable Chatbots supporting Learning. In J. Theo Bastiaens (Ed.), Proceedings of EdMedia + Innovate Learning (pp. 1376-1381). Amsterdam, Netherlands.
10. Di Blas, N., Lodi, L., Paolini, P., Pernici, B., Renzi, F., & **Rooein, D.** (2019). Data Driven Chatbots: A New Approach to Conversational Applications. Proceedings of the 27th Italian Symposium on Advanced Database Systems, Castiglione della Pescaia (Grosseto), Italy, June 16-19, 2019
11. **Donya Rooein**. 2019. Data-Driven Edu Chatbots. In Companion Proceedings of The 2019 World Wide Web Conference (WWW '19), Ling Liu and Ryen White (Eds.). ACM, New York, NY, USA, 46-49. DOI: <https://doi.org/10.1145/3308560.3314191>.

Language Skills

English Fluent speaker

Italian Intermediate speaker