Elena Yan

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Education

11/2023 – Today
- **PhD Student in Computer Science**
  MINES Saint-Étienne, Saint-Étienne, France
  Thesis Subject: *Self-Adaptive Regulation Mechanisms for a Trustworthy and Sustainable Industry of the Future*
  Supervisors:
  Prof. Olivier Boissier – MINES Saint-Étienne, Thesis Director
  Prof. Jaime Simão Sichman – University of São Paulo, co-director
  Prof. Luis Gustavo Nardin – MINES Saint-Étienne, co-supervisor
  Keywords: Multiagent Systems, Normative Systems, Responsible AI, Industry of the Future
  Funding: ANR/FAPESP ANR-22-CE23-0018 Normative Artificial Intelligence for regulating MANufacturing - NAIMAN Project

09/2021 – 10/2023
- **Master Degree in Computer Science and Engineering**
  Alma Mater Studiorum - University of Bologna, Campus of Cesena, Italy
  Class n. LM-32 - 2nd level degree in Computer Engineering
  Graduation grade: 110/110 with Honors
  Thesis title: *A Multi-Level Explainability Framework for BDI Multi-Agent Systems*
  Subjects: Pervasive Computing
  Supervisor: Prof. Alessandro Ricci
  Co-Supervisors: Prof. Jomi Fred Hübner, Samuele Burattini
  Keywords: Agent-oriented software engineering, Multi-Agent Systems, Debugging agent program, Explainability, BDI agents, JaCaMo framework
  URL: https://amslaurea.unibo.it/29644

09/2018 – 07/2021
- **Bachelor Degree in Computer Science and Engineering**
  Alma Mater Studiorum - University of Bologna, Campus of Cesena, Italy
  Class n. L-8 - 1st level degree in Information Technology
  Graduation grade: 98/110
  Thesis title: *Telemedicine and Wearable Computing to Support Healthcare Professionals in Stroke Diagnosis: the TeleStroke Project as a Case Study*
  Subjects: Embedded Systems and Internet of Things
  Supervisor: Prof. Alessandro Ricci
  Co-Supervisors: Prof. Angelo Croatti
  Keywords: Wearable Computing, Smartglasses, Telemedicine, Teleconsultation, TeleStroke, Usability
  URL: https://amslaurea.unibo.it/23876/ (Italian)

09/2013 – 07/2018
- **Secondary High School Diploma**
  Liceo Artistico e Musicale 'Antonio Canova', Forlì, Italy
  Specialization: Industrial Design
  Graduation grade: 85/100

Publications

Journal Articles

1. **E. Yan**, S. Burattini, J. F. Hübner, and A. Ricci, "A multi-level explainability framework for engineering and understanding BDI agents," *Autonomous Agents and Multi-Agent Systems*, vol. 39, no. 1, p. 9, 2025. DOI: 10.1007/S10458-025-09689-6.

Conference Proceedings

1. **E. Yan**, L. G. Nardin, J. F. Hübner, and O. Boissier, "An agent-centric perspective on norm enforcement and sanctions," in *Coordination, Organizations, Institutions, Norms, and Ethics for Governance of Multi-Agent Systems XVII*, S. Cranefield, L. G. Nardin, and N. Lloyd, Eds., Cham: Springer Nature Switzerland, 2025, pp. 79–99, ISBN: 978-3-031-82039-7. DOI: 10.1007/978-3-031-82039-7_6.
2. **E. Yan**, S. Burattini, J. F. Hübner, and A. Ricci, "Towards a multi-level explainability framework for engineering and understanding BDI agent systems," in *Proceedings of the 24th Workshop "From Objects to Agents", Roma, Italy, November 6-8, 2023*, R. Falcone, C. Castelfranchi, A. Sapienza, and F. Cantucci, Eds., ser. CEUR Workshop Proceedings, vol. 3579, CEUR-WS.org, 2023, pp. 216–231. URL: https://ceur-ws.org/Vol-3579/paper17.pdf.

Preprints

1. **E. Yan**, L. G. Nardin, J. F. Hübner, and O. Boissier, *An agent-centric perspective on norm enforcement and sanctions*, 2024. DOI: 10.48550/ARXIV.2403.15128. arXiv: 2403.15128.

Research Projects

2023–2027 ▸ **Normative Artificial Intelligence for regulating MANufacturing (NAIMAN)**, ANR/FAPESP ANR-22-CE23-0018 – *Participation.*
NAIMAN aims to develop technologies that enable agents to operate in heterogeneous and dynamic industrial settings and reason about normative aspects to enhance flexibility, resilience, trustworthiness, and sustainability of manufacturing systems in the context of the Industry of the Future. NAIMAN will create normative regulation mechanisms, design a regulation architecture and implement a MAS platform, whose applicability will be demonstrated and assessed on various Industry of the Future platforms.

Scientific Activities

Presentations

17/10/2024 ▸ **A Normative Agent-Centric Approach to Regulate Manufacturing Process**, *SeReCo Autumn Workshop 2024*, 17th - 18th October, Karlsruhe, Germany.

Scientific Activities (continued)

10/07/2024 ▸ **An Agent-Centric Perspective on Norm Enforcement and Sanctions**, *25th Workshop "From Objects to Agents" (Dissemination Track)*, 7th-10th July 2024, Forte di Bard, Italy.

07/05/2024 ▸ **An Agent-Centric Perspective on Norm Enforcement and Sanctions**, *International Workshop on Coordination, Organizations, Institutions, Norms and Ethics for Governance of Multi-Agent Systems AAMAS@COINE2024*, Auckland, New Zealand, May 7, 2024.

24/04/2024 ▸ **Self-adaptive Regulation Mechanisms for a Trustworthy and Sustainable Industry of the Future**, *IMT 2024 Colloquium "Responsible Industry of Future"*, 23th-25th April 2024, Gardanne, France.

08/11/2023 ▸ **Towards a Multi-Level Explainability Framework for Engineering and Understanding BDI Agent System**, *24th Workshop "From Objects to Agents" WOA23*, 6th-8th November 2023, Rome, Italy.

Review Activity

2024 ▸ Sub-reviewer for @ECAI - 27th European Conference on Artificial Intelligence

Teaching

2024/2025 ▸ **Integrating and Engineering Intelligent Systems**, Laboratory, 23 hours, graduate course in Science and Engineering — ICM (Ingénieur Civil des Mines) 3rd year, MINES Saint-Étienne, Saint-Étienne.

▸ **Multi-Agent Coordination** Laboratory, 18 hours, Master Cyber-Physical Social Systems 2nd year, MINES Saint-Étienne, Saint-Étienne.

2023/2024 ▸ **Object Oriented Programming**, Laboratory, 18 hours, graduate course in Science and Engineering — ICM (Ingénieur Civil des Mines) 1st year, MINES Saint-Étienne, Saint-Étienne.

▸ **Industrial Risk and Accident Project - Modern Languages**, Scientific research tutor, 8 hours, graduate course in Science and Engineering — ICM (Ingénieur Civil des Mines) 1st year, MINES Saint-Étienne, Saint-Étienne.

Work Experience

03/2021 – 05/2021 ▸ **Curricular Internship**
Alma Mater Studiorum - University of Bologna, Campus of Cesena, Italy
Pervasive Software Lab - PSLAB
Design and development of software components for wearable technology systems applied in the healthcare field.

09/2018 – 05/2019 ▸ **Waitress**
Giardino Wu, Forlì, Italy
Responsible for table service, guest reception, and phone call management.

Work Experience (continued)

01/2017 – 02/2017
- **Curricular Internship**
  Municipality of Forlì, Forlì, Italy
  Traffic Office
  Image processing and rendering of municipal plans and projects related to traffic management.

05/2016 – 06/2016
- **Curricular Internship**
  Arte e Ricamo S.r.l. Forlì, Italy
  Organization and management of the company's archive, including cataloguing, indexing, and monitoring of documents and information.

Professional Development

22 - 26/07/2024
- **2024 Summer School on AI Technologies for Trust, Interoperability, Autonomy and Resilience in Industry 4.0**
  MINES Saint-Étienne, Saint-Étienne, France

17 - 28/07/2023
- **Advanced Summer School in Artificial Intelligence**
  University Residential Center of Bertinoro (Ce.U.B), Italy & Department of Computer Science and Engineering, University of Bologna

Skills

Languages

Native/Bilingual
- Chinese,
  Italian

Other languages
- English, Intermediary
  French, Basic

Programming skills

Programming languages
- ●●●●● **Java** ●●●●○ **Kotlin** ●●●●○ **Scala**
  ●●●●○ **JavaScript** ●●●○○ **Python** ●●●○○ **Prolog**
  ●●●●○ **TypeScript** ●●●○○ **Lua** ●●●○○ **C**
  ●●○○○ **C++** ●●○○○ **C#**

Technologies and frameworks
- ●●●●● **JaCaMo** ●●●●○ **Android** ●●●●○ **Node.js**
  ●●●●○ **React** ●●●○○ **Angular** ●●○○○ **Vue.js**
  ●●●●○ **Gradle** ●●●○○ **Docker** ●●●○○ **MongoDB**
  ●●●●● **Git**

Other languages
- YAML, HTML, CSS, SCSS, XML, JSON, LaTeX, Markdown

Programming Paradigms
- Object Oriented Programming, Functional Programming, Agent Oriented Programming, Logic Programming, Event Driven Programming, Imperative/Procedural Programming

Portfolio

03/2023 – Today

- **A Multi-Level Explainability Framework for BDI Multi-Agent Systems**
  Keywords: Multi-Agent Systems, BDI Agent Model, JaCaMo, Jason, Explainability
  In this project, we build on top of the idea of using logs to examine the behaviour of a software system by applying it to multi-agent systems with a novel angle which is to include multiple levels of explanation generated from the same set of logs. Commonly, explainability in agent systems is achieved by focusing on a single agent that produces a single explanation for a single purpose. Our research introduces a different approach by presenting an explainability framework for agents and multi-agent systems that deals with multiple levels of abstraction that can be used for different purposes by different classes of users.
  `https://github.com/yan-elena/agent-logging`
  `https://github.com/yan-elena/agent-explanation`
  `https://github.com/yan-elena/domestic-robot-example`

05/2023 – 06/2023

- **Grammatical Error Correction**
  Subject: Deep Learning
  Keywords: Deep Learning, Recurrent Neural Networks, Transformers
  The aim of the project is to evaluate the performance of several deep learning models on the Grammatical Error Correction (GEC) task, which consists of transforming a potentially wrong input sentence into a corrected version.
  See in Colab

11/2022 – 03/2023

- **Smart Greenhouse**
  Keywords: Microservices, CI/CD, Domain Driven Design, Arduino
  Subject: Smart City, Laboratory of Software Systems
  The aim of the project is to realise a smart system that enables the management and monitoring of a greenhouse.
  `https://github.com/SmartGreenhouse-22-23/`

07/2022 – 10/2022

- **SmartGH**
  Keywords: Scala, Prolog, Functional Programming, Logic programming, SCRUM
  Subject: Programming and Development Paradigms
  The aim of the project is to simulate the management of an intelligent greenhouse, able to interact with the environment in which it is located through sensors that detect relevant parameters for plant growth and receive updates on external environmental conditions.
  `https://github.com/AnnaVitali/PPS-22-smartgh`

04/2022 – 06/2022

- **Talking Campus**
  Keywords: MERN, Socket.io, React, MongoDB, Docker
  Subject: Web Applications and Services
  The aim of this project is to provide students with information on campus locations and spaces, giving them the possibility to view lectures, and free and occupied classrooms and to manage reservations of places in study rooms or the library.
  `https://bitbucket.org/ele-anna/talkingcampus/src/master/`

Honors and Awards

23/05/2018 ▸ **Ideas Competition for the Design of the Logo for the Various Fields of Application of the Municipality of Forlì**
The competition involved the creation of a logo for the Municipality of Forlì. The designed logo is currently being used across various areas of the municipality's activities.
https://www.forlitoday.it/cronaca/un-logo-delle-attivita-comunali-in-mostra-gli-elaborati-degli-studenti.html

25/04/2018 ▸ **First National Art Prize "Iris Versari" 2nd Edition**
Municipality of Forlì - 73rd Anniversary of Liberation
Prize in memory of the partisan and Gold Medal recipient for military valour, Iris Versari.