Agnese Chiatti - CV Highlights

Affiliation & Contacts

Artificial Intelligence and Robotics Lab (AIRLab)
Department of Electronics, Information, and Bioengineering (DEIB)
Politecnico di Milano, Milan, Italy
agnese.chiatti@polimi.it Webpage Google Scholar LinkedIn

Professional experience

- [June 2025 - Present] Assistant Professor at POLIMI
- [June 2023 - June 2025] Postdoctoral Researcher at POLIMI
- [Oct 2022 – June 2023] L'Oréal-UNESCO Visiting Fellow at POLIMI (Italy)
- [June 2018 - Mar 2023] Research Assistant at The Open University (UK)
- [Aug 2016 – May 2018] Research and Teaching Assistant at Penn State University (USA)
- [June 2015 - June 2016] Employee in the R&D - Innovation Unit at Hera Group (Italy)

Education

- [Oct 2019 - Sep 2022] PhD, The Open University (UK). Awarded on 14/12/2022
Thesis: "Visually Intelligent Agents: Improving Sensemaking in Service Robotics"
Supervisors: Prof. Enrico Motta, Dr. Enrico Daga
- [Aug 2016 - Aug 2019] MS in Information Sciences and Technology, Penn State (USA)
- [Nov 2012 - Sep 2014] MS in Industrial Engineering and Management, POLITO (Italy)

Grants & Awards

[Sept 2024] Project selected for funding by the Italian Ministry of University and Research under the "Young Researchers 2024" initiative
[Apr 2024] Seal of Excellence for the MSCA Fellowship. Grant proposal "ReFiNe: Redefining Field robot deployment through Neuro-symbolic visual sensemaking".
[2022] L'Oréal-UNESCO for Women in Science Fellowship. Grant proposal on Neuro-symbolic AI methods to improve robots' visual perception for agricultural applications.
[2022] Finalist for the John McCarthy award for Italian researchers in AI under 35.
[2021] Co-led a team of MS students at the Smart Cities Robotics Challenge 1st place on the task of autonomously controlling a humanoid robot to manoeuvre a shopping cart.

Selected Publications

- Celino, I., Scrocca, M., and Chiatti, A. (2025). Mutual Understanding Between People and Systems via Neurosymbolic AI and Knowledge Graphs. In *Handbook on Neurosymbolic AI and Knowledge Graphs*.
- Chiatti, A., Bertoglio, R., Catalano, N., Gatti, M., and Matteucci, M. (2023) Surgical fine-tuning for Grape Bunch Segmentation under Visual Domain Shifts. In *Proceedings of the European Conference on Mobile Robots* (ECMR23).
- Chiatti, A., Bardaro, G., Matteucci, M., and Motta, E. (2023) Visual Model Building for Robot Sensemaking: Perspectives, Challenges, and Opportunities. *Bridge Session on AI and Robotics of the thirty-seventh AAAI conference on Artificial Intelligence* (AAAI-23).
- Chiatti, A., Motta, E., and Daga, E. (2022) Robots with Commonsense: Improving Object Recognition through Size and Spatial Awareness. In *Proceedings of the 2022 AAAI Spring Symposium on Machine Learning and Knowledge Engineering for Hybrid Intelligence*.
- Chiatti, A., Motta, E., and Daga, E. (2020) Towards a Framework for Visual Intelligence in Service Robotics: Epistemic Requirements and Gap Analysis. In *Proceedings of the 17th International Conference on Principles of Knowledge Representation and Reasoning (KR)*.

Academic service

Organizing Committee: DEEPFIELD workshop on "Deploying mobile robots in unconstrained real-world environments" at ECMR 2023
Assistant Chair: the 2022 KR Special Session on KR and Robotics
PC member: ECAI, Semantics, KR conference, ISWC, ESWC.

Other activities

- [Mar 2023 - Present] Supervised five Master Students at AIRLab POLIMI.
- Teaching modules - Teaching Assistant for the Penn state MS/PhD course on Information Retrieval and Search Engines; the Penn State BSc course on Organization of Data.
- [2020-2022] Member of the KMi Athena Swan team, promoting gender equality, diversity, and inclusion at the Knowledge Media Institute (KMi).
- [2021-2022] Co-host of the "KMi Maven of the Month", a series of virtual Q&A sessions with AI experts on broad socio-technical topics (AI & Ethics, Digital Misinformation, and others).

Agnese Chiatti - Extended CV

Webpage
GScholar
LinkedIn

Agnese is **Assistant Professor** at the Artificial Intelligence and Robotics Lab (AIRLab), Politecnico di Milano, Italy. Her main research interests concern the *enhancement of Deep Learning methods in Computer Vision with Knowledge Engineering and Knowledge-driven Technologies*. She has obtained a **PhD in Artificial Intelligence** from the Knowledge Media Institute (the Open University, UK). She also holds a **MSc in Information Sciences and Technology** from Penn State University and a **MSc in Industrial Engineering and Management** from Politecnico di Torino. Agnese has contributed to many EU-funded and US-funded projects, exploring the topic of knowledge engineering, extraction, and retrieval from different angles and data sources, ranging from energy consumption data, scholarly data, and ontologies to art collections, digital screenshots, and perceptual data for applications in AI and Field Robotics.

Research Interests: Computer Vision, Knowledge Engineering for AI and Robotics, Neuro-symbolic AI, Service and Field Robotics.

Professional experience

June 2025 - Present	Assistant Professor at AIRLab (PoliMI, Italy)
June 2023 - June 2025	Postdoctoral Researcher at AIRLab (PoliMI, Italy)
Oct 2022 – June 2023	L'Oréal-UNESCO Visiting Fellow at AIRLab (PoliMI, Italy)
Jan 2022 - Mar 2023	Research Assistant at KMi (The Open University, UK) – part time
June 2018 – Sep 2019	Research Assistant at KMi (The Open University, UK) – full time
Aug 2016 – May 2018	Research and Teaching Assistant at IST (Penn State University, USA)
June 2015 – June 2016	Employee in the R&D - Innovation Unit at Hera Group (Italy)
Feb 2015 – May 2015	Intern at CRIF - Business Analyst - Decision Solutions team (Italy)

Education

Oct 2019 - Sep 2022	PhD in Artificial Intelligence, The Open University (UK)
Aug 2016 - Aug 2019	MSc in Information Sciences and Technology, Penn State University (USA)
Nov 2012 - Sep 2014	MSc in Industrial Engineering and Management, Politecnico di Torino (Italy)

Awards and funding

- The ReFiNe project (PI: Agnese Chiatti) earned additional funding (250k€) over 3 years through the Italian Ministry of University and Research **Young Researchers 2024** call.
- Awarded the **Seal of Excellence (SoE) for the 2023 MSCA Postdoctoral Fellowship** grant proposal titled "ReFiNe: Redefining Field robot deployment through Neuro-symbolic visual sensemaking", funded for 2 years through the **PoliMi SoE Fellowship**.
- Awarded the **2022 L'Oréal-UNESCO for Women in Science Italy prize, a 10-month postdoctoral scholarship** (20k€). One of six awardees (out of more than 200 applicants) and the only Computer Scientist to be recognised with the award.
- Finalist for the **2022 John McCarthy award for Italian researchers in AI under 35**.
- 1st place at the **2021 Smart Cities Robotics Challenge - robot shopping cart task**

Research projects

August 2024 - **Present**	I am currently PI for the **ReFiNe** project, working with Prof.s Matteo Matteucci Viola Schiaffonati (POLIMI), and Sara Bernardini (University of Oxford) on assessing the trustworthiness of Vision-Language models via user interaction.
Jun 2023 - Aug 2024	I have contributed to the AgrifoodTEF European project, **a 60M euro EU funded initiative (2023-2028)** involving partners from 9 EU countries aimed at providing the first EU-wide Testing and Experimentation Facility for the AI and Robotics solutions in Precision Agriculture.
Oct 2022 - June 2023	Visiting period at AIRLab under the L'Oreal-UNESCO "For Women in Science" fellowship, exploring **Domain Adaptation methods** to handle visual domain shifts in the context of perceptual data collected by **robots in vineyards**.
Oct 2022 - Mar 2023	At the Knowledge Media Institute (KMi), I have contributed to the Horizon2020 flagship project GATEKEEPER, which has focused on developing smart digital technologies to support health independent living for the **ageing population**. In this context, I have developed **robot vision and semantic mapping** solutions to retrieve personal items in home environments as an **assistive tool** in cases of mild cognitive and visual impairment.
Oct 2019 - Sep 2022	My PhD research, supervised by Prof. Enrico Motta and Dr. Enrico Daga, has been focused on contributing a novel framework for developing Visually Intelligent Agents, i.e., robots that exhibit human-like visual cognition. In the proposed framework, **sub-symbolic techniques based on Deep Learning are drastically enhanced by integrating commonsense knowledge** repurposed from external repositories. The validation of this methodology has been primarily focused on the case of a robot assistant that monitors office environments to detect potential threats to the Health & Safety of employees.
Jan 2022 - Sep 2022	I have contributed to the Horizon2020 project SPICE (Social Cohesion, Participation, and Inclusion through Cultural Engagement), applying **Neuro-symbolic methods to the classification of artistic subjects** in the TATE gallery collection.
Sep 2016 - May 2018	While working in Prof. Lee Giles' Lab at PSU, I have been a part of the Human Screenome project, a collaboration between **Penn State University** and **Stanford University**. In particular, I have been in charge of implementing an **end-to-end architecture for extracting and indexing textual information from smartphone and laptop screenshots**. This platform has allowed researchers in the behavioural and medical sciences to analyse how daily media consumption may affect **fragile user categories**, such as adolescents and low-income groups. Outcomes from this research have been featured in The New York Times, SAGE Ocean, and Medium, among others.
Aug 2014 - Oct 2014	Visiting MS student at Linköping University (Sweden) while studying at Politecnico di Torino. Under the supervision of Prof. Tania Cerquitelli and Prof. Patrick Lambrix, I have worked on applying data mining and **clustering techniques** to reduce the computational cost of **aligning large-scale ontologies.**
June 2015 - June 2016	While working at the Research & Development unit of HERA, I have been responsible for bootstrapping a dashboard for tracking the energy consumption of urban buildings in the pilot project "Energy maps for Smart Cities".

Research track record

21 publications, 13 of which are first-authored publications (18 entries and 40 co-authors on Scopus), including the AAAI and AAAI Symposia series, and the International Conference on Principles of Knowledge Representation and Reasoning (KR).

	Google Scholar	Scopus
citations	381	203
h-index	8	7
i10-index	6	-

Peer-reviewed publications:

Savazzi, G., Lomurno, E., Sbrolli, C., **Chiatti, A.**, and Matteucci, M. Neuro-Symbolic Scene Graph Conditioning for Synthetic Image Dataset Generation. In Proceedings of The International Conference on Machine Learning, Optimization, and Data Science (LOD25).

Celino, I., Scrocca, M., and **Chiatti, A**. (2025). Mutual Understanding Between People and Systems via Neurosymbolic AI and Knowledge Graphs. In *Handbook on Neurosymbolic AI and Knowledge Graphs*.

Catalano, N., Maranelli, A., **Chiatti, A.**, and Matteucci, M. (2024). More than the Sum of Its Parts: Ensembling Backbone Networks for Few-Shot Segmentation. To appear in *Proceedings of the International Joint Conference on Neural Networks (IJCNN24)*.

Chiatti, A., Bertoglio, R., Catalano, N., Gatti, M., and Matteucci, M. (2023). Surgical fine-tuning for Grape Bunch Segmentation under Visual Domain Shifts. In *Proceedings of the 11th European Conference on Mobile Robots (ECMR)*.

Chiatti, A., Bardaro, G., Matteucci, M., and Motta, E. (2023) Visual Model Building for Robot Sensemaking: Perspectives, Challenges, and Opportunities. *Bridge Session on AI and Robotics of the thirty-seventh AAAI conference on Artificial Intelligence (AAAI-23).*

Chiatti, A., and Daga, E. (2022) Neuro-symbolic learning for dealing with sparsity in cultural heritage image archives: an empirical journey. In *Proceedings of the 21st International Semantic Web Conference - Workshop on Deep Learning for Knowledge Graphs (DL4KG)*. CEUR.

Chiatti, A., Bardaro, G., Motta, E., and Daga, E. (2022) A Spatial Reasoning Framework for Commonsense Reasoning in Visually Intelligent Agents. In *Proceedings of the 8th International Workshop on Artificial Intelligence and Cognition (AIC)*. CEUR.

Bardaro, G., Daga, E., Carvalho, J., **Chiatti, A.**, and Motta, E. (2022) Introducing a Smart City component in a Robotic Competition: a field report. In *Frontiers in Robotics and AI - Smart Sensor Networks and Autonomy*.

Chiatti, A., Motta, E., and Daga, E. (2022) Robots with Commonsense: Improving Object Recognition through Size and Spatial Awareness. In *Proceedings of the 2022 AAAI Spring Symposium on Machine Learning and Knowledge Engineering for Hybrid Intelligence (AAAI-MAKE)*. CEUR.

Chiatti, A. Towards Visually Intelligent Agents (VIA): a Hybrid Approach. (2021) In *Proceedings of the European Semantic Web Conference (ESWC) – Satellite Events. PhD Symposium*. Springer.

Chiatti, A., Motta, E., Daga, E., and Bardaro, G. (2021) Fit to Measure: Reasoning about Sizes for Robust Object Recognition. In *Proceedings of the AAAI Spring Symposia - Workshop on Combining Machine Learning and Knowledge Engineering (AAAI-MAKE)*. CEUR.

Chiatti, A., Motta, E., and Daga, E. (2020) Towards a Framework for Visual Intelligence in Service

Robotics: Epistemic Requirements and Gap Analysis. In *Proceedings of the 17th International Conference on Principles of Knowledge Representation and Reasoning (KR)*.

Chiatti, A., Bardaro, G., Bastianelli, E., Tiddi, I., Mitra, P. and Motta, E. (2020) Task-agnostic Object Recognition for Mobile Robots through Few-shot Image Matching. In *Electronics. Special Issue on Big Data Analytics for Smart Cities* .9(3), 380. MDPI.

Reeves, B., Ram, N., Robinson, T.N., Cummings, J. J., Giles, L., Pan, J., **Chiatti, A.**, Cho, M.J. et al. (2019) *Screenomics*: A Framework to Capture and Analyze Personal Life Experiences and the Ways that Technology Shapes Them. In *Human Computer Interaction.*

Chiatti, A., Bardaro, G., Bastianelli, E., Tiddi, I., Mitra, P. and Motta, E. (2019) Exploring Task-agnostic, ShapeNet-based Object Recognition for Mobile Robots. In *Proceedings of the 3rd International workshop on Data Analytics solutions for Real-LIfe APplications (DARLI-AP)*. CEUR.

Ul Hoque, M.R., Bradley, D., Kwan, C., **Chiatti, A.**, Li, J. and Wu, J. (2019) Searching for Evidence of Scientific News in Scholarly Big Data. In *Proceedings of the 10th International Conference on Knowledge Capture (K-CAP).* ACM.

Bardaro, G., Semprebon, A., **Chiatti, A.**, and Matteucci, M. (2019) From Models To Software Through Automatic Transformations: An AADL To ROS End-to-End Toolchain. In *Proceedings of the Third IEEE International Conference on Robotic Computing (IRC)*, 580-585. IEEE.

Chiatti, A., Cho, M. J., Gagneja, A., Yang, X., Brinberg, M., Roehrick, K., Choudhury, S. R., Ram, N., Reeves, B. and Giles, C. L. (2018) Text Extraction and Retrieval from Smartphone Screenshots: Building a Repository for Life in Media. In *Proceedings of the 33rd ACM/SIGAPP Symposium on Applied Computing (SAC)*. ACM.

Chiatti, A., Yang, X., Brinberg, M., Cho, M.J., Gagneja, A., Ram, N., Reeves, B., and Giles, C. L. (2017) Text Extraction from Smartphone Screenshots to Archive *in situ* Media Behavior. In *Proceedings of the 9th International Conference on Knowledge Capture (K-CAP)*. ACM.

Wu, J. Choudhury, S.R., **Chiatti, A.**, Liang, C, and Giles, C.L. (2017) HESDK: A Hybrid Approach to Extracting Scientific Domain Knowledge Entities.. In *Proceedings of the ACM/IEEE Joint Conference on Digital Libraries (JCDL 2017).* 241- 244. *ACM/IEEE*.

Chiatti, A., Dragisic, Z., Cerquitelli, T. and Lambrix, P. (2015) Reducing the search space in ontology alignment using clustering techniques and topic identification. In Proceedings *of the 8th International Conference on Knowledge Capture* (K-CAP 2015). Palisades, NY, USA, October 7-10.

Research monographs:

Chiatti, A. (2022) Visually Intelligent Agents: Improving Sensemaking in Service Robotics. PhD Thesis. The Open University.

Chiatti, A. (2019) Information Extraction and Retrieval from Digital Screenshots –Archiving in situ Media Behavior. Master of Science Thesis. The Pennsylvania State University.

Academic service

- **Organizing Committee**: DEEPFIELD workshop on "Deploying mobile robots in unconstrained real-world environments" at ECMR 2023
- **Assistant Chair**: the 2022 KR Special Session on KR and Robotics
- **PC member**: ECAI, KR conference, CIKM, Semantics, ESWC, ISWC, ESWC Workshop on Actionable Knowledge Representation and Reasoning for Robots, ISWC 2023 Workshop on Deep Learning for Knowledge Graphs (DL4KG), Data Analytics Solutions for Real-life Applications workshop - DARLI-AP (2018-2022).
- **Journal reviewer**: Information Systems Frontiers, Semantic Web Journal Special issue on Cultural Heritage, Semantic Web Journal Special issue on Deep Learning for Knowledge Graphs (DeepL4KGs).
- **Conference reviewer**: ICRA, ICDAR, TheWebConf, CHI.

Master Theses supervision

- F. Lusha, *Understanding Video Content with Multimodal LLMs and Graphs* (Oct 2024 - Present).
- G. Savazzi, *Neuro-Symbolic Conditioning for Synthetic Dataset Generation via GANs and Stable Diffusion* [link] (Mar 2024 - Mar 2025).
- F. Hajizade Kiakalaye, *Recognising Simultaneous Human Activities from Single Pose Data* **[link]** (Oct 2023 - July 2024).
- S. Scozzari, *The impact of spatio-visual awareness in context-based Scene Graph Generation* **[link]** (Oct 2023 - July 2024).
- G. Topal, *Autonomous Gauge Detection in Industrial Environments* **[link]** (Mar 2023- Dec 2023).

Teaching and mentoring

Sep 2025	Introductory **Informatics course** for Aerospatial Eng. (POLIMI - Bachelor level)
Apr 2022 - Present	Prepared and delivered **training courses as an introduction to AI and Robotics** for STEM students and teachers in Italian high schools and middle schools (Liceo Scientifico Copernico, Bologna; ICS Commenda, Milano).
Jun - Sep 2021	**Co-led a team of Master students** from AIRLab during the **2021 Smart Cities Robotics Challenge robotic competition**, where the team had to program a humanoid TIAGo robot to manoeuvre a shopping cart along a given path.
Jun - Aug 2021	**Co-advisor of two visiting bachelor students from Amity University (India)** on Deep Learning for applications in the Digital Humanities and Cultural Heritage.
Jun - Aug 2021	**Lead supervisor of a Year 12 student for the KMi Summer Scholarship for students from minority groups**. Project on theoretical and practical aspects of managing RGB-Depth camera sensors with the Robot Operating System (ROS).
Spring term 2018	**Teaching Assistant** for the IST 441 module – specialty course (for senior-level and graduate-level students) on **Information Retrieval and Search Engines**.
Fall term 2016	**Teaching Assistant** for the IST 210 module - sophomore-level course on **Organization of Data**, i.e., methods for Database management.

Invited talks and outreach

· **Invited speaker** at the SHESTEM event organised by ITI P. Hensemberger (Monza, Italy) to empower high school students in pursuing STEM careers (Feb 2023, Feb 2024).
· **Lecture** on "Deep Learning for object recognition" at the DEEPFIELD summer school at AIRLab (Nov 2022).
· **Invited talk** "Making Sense of Sensemaking - Visually Intelligent Robots" at the first MKAI Lunch & Learn event (Milton Keynes, UK, May 2022).
· **Invited research role model** for the weekly live Q&A with STEMettes, a social enterprise in the UK working to inspire and support young women and non-binary people in STEM careers (Apr 2022).
· **Invited panellist** on the theme of Women, Technology and Innovation ("Donne, Tecnologia e Innovazione"), for the 160th anniversary of the foundation of Politecnico di Torino (Nov 2019).
· **Invited talk** "How Deep Learning paradigms might inform Screenome construction" at the Department of Communication, Stanford University (May 2018).

Organisational skills and social advocacy

- Co-host of the KMi Maven of the Month series, a series of **virtual Q&A sessions with AI experts to promote an open discussion of broad socio-technical topics** (e.g., AI & Ethics, Digital Misinformation, and others) engaging with a diverse audience from different departments within the Open University.

- **Member of the KMi Athena Swan self-assessment team (SAT)** from 2020 to 2022, promoting gender equality, diversity, and inclusion at the Knowledge Media Institute (KMi).

- **Volunteering Program Coordinator at the 1st EU Smart Cities Robotics Challenge** in 2019, the first European Robotic League (ERL) competition to be held in a public shopping centre.