

Agnese Chiatti



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I am a **PhD Student** at the Knowledge Media Institute (the Open University, UK), working under the supervision of [Prof. Enrico Motta](#) and [Dr. Enrico Daga](#). I hold a M.S. in Information Sciences and Technology (IST) from the Pennsylvania State University, where I have worked with Profs. [Lee Giles](#), [Nilam Ram](#) and [Prasenjit Mitra](#).

My research is currently focused on developing **hybrid solutions**, combining **Knowledge-driven technologies** with **Machine Learning**, to enhance the **Visual Intelligence** of **service robots**. You can find out more about this project [here](#).

EDUCATION

2019 – Present

PhD Student at KMi (the Open University, UK)

Thesis Advisors: *Prof. Enrico Motta, Dr. Enrico Daga*

2016 – 2019

MS in Information Sciences and Technology at PSU

Thesis Advisor: *Prof. Prasenjit Mitra*

2012 – 2014

MS in Industrial Engineering and Management (IT minor) at Politecnico di Torino – Italy

Thesis Advisor: *Prof. Tania Cerquitelli*

2009 – 2012

BS in Industrial Engineering and Management (IT minor) at University of Bologna – Italy

WORK EXPERIENCE

June '18 – Sep '19	Research Assistant at KMI, the Open University, UK
Aug '16 – May'18	Research and Teaching Assistant at Penn State University
Jan '16 – Jun '16	Employee at Hera Group - R&D – Innovation - Italy
Jun'15 – Dec '15	Intern at Hera Group - R&D – Innovation - Italy
Feb '15 – Jun '15	Intern at CRIF - Business Analyst, UK Market - Italy
May '13 – Sep '13	Scholarship holder at Politecnico di Torino - Open Access Office – Italy

RESEARCH PROJECTS



- **(Oct 2019 - Present)** My PhD research is focused on contributing an epistemic framework to develop Visually Intelligent Agents (VIA). As part of this framework, I propose a methodology that leverages Deep Learning methods with Knowledge-based Reasoning, contributing to the growing field of Hybrid (or Neurosymbolic) Learning. Experimentally, I am testing the proposed methodology on robotic applications.
- **(June - Aug 2021)** With [Dr. Enrico Daga](#), co-supervising a Cultural Heritage project, where Machine Learning and Semantic Knowledge are leveraged to transfer metadata annotations across two large-scale collections of artworks.
- **(June - Sept 2021)** Collaboration with [AIRLab](#) (Politecnico di Milano, Italy). Co-led one of the winning teams of the [2021 Smart Cities Robotics Challenge](#) (SciRoc)
- **(June- Sept 2019)** I was part of the organising team for the 1st edition of the [Smart Cities and Robotics \(SciRoc\) Challenge](#).
- **(June 2018 – Sept 2019)** My research at the Knowledge Media Institute (KMi - the Open University, UK), has been initially focused on object detection and recognition from Robot-collected RGB-Depth data, with [Prof. Enrico Motta](#), [Dr. Ilaria Tiddi](#) and [Dr. Emanuele Bastianelli](#) as line managers.
- **(Oct- Nov 2018)** At KMi, I have also collaborated with [Dr. Pinelopi Troullinou](#) to the final evaluation phase of the [Analytics for Everyday Learning \(AFEL\)](#) EU project, aimed at investigating how users reach informal and collective learning through online platforms.
- **(2016- 2018)** During my first two years at Penn State, I have worked with [Prof. Lee Giles](#) (IST) and [Nilam Ram](#) (Human Development and Family Studies) at the [Screenomics](#) project, a collaboration with Stanford University. My work has been

- focused on implementing a Cloud-based infrastructure for text extraction and retrieval from digital screenshots (collected from individuals' laptops and smartphones).
- **(2016 - 2017)** I have collaborated with [Drs. Jian Wu](#) and [Sagnik Ray Chodhoury](#) in the development of a scientific domain knowledge entity extractor, implementing a hybrid approach (supervised + unsupervised).
- **(2015 – 2016)** While working for an energy multi-utility, I have been part of a pilot project on energy consumption mappings, in a Smart City scenario.
- **(Aug-Sept 2014)** Visiting Master student at Linköping University (Sweden) in the Division for Database and Information Techniques. This visiting experience was part of my Master Thesis development, advised by [Prof. Tania Cerquitelli](#) (Politecnico di Torino) and [Prof. Patrick Lambrix](#) (Linköping University).

PUBLICATIONS

 Journal
  Conference
  Workshop

2021

-  **Chiatti, A.** Towards Visually Intelligent Agents (VIA): a Hybrid Approach. In Proceedings of the 2021 ESWC Conference – Satellite Events. PhD Symposium. Springer.
-  **Chiatti, A.,** Motta, E., Daga, E., and Bardaro, G. [Fit to Measure: Reasoning about Sizes for Robust Object Recognition](#). In Proceedings of the 2021 AAAI Spring Symposia - Workshop on Combining Machine Learning and Knowledge Engineering (AAAI-MAKE 2021). CEUR.

2020


-  **Chiatti, A.,** Motta, E., and Daga, E. (2020) [Towards a Framework for Visual Intelligence in Service Robotics: Epistemic Requirements and Gap Analysis](#). To appear in *Proceedings of the 17th International Conference on Principles of Knowledge Representation and Reasoning (KR 2020)*.
-  **Chiatti, A.,** Bardaro, G., Bastianelli, E., Tiddi, I., Mitra, P. and Motta, E. [Task-agnostic Object Recognition for Mobile Robots through Few-shot Image Matching](#). 2020. *Electronics. Special Issue on Big Data Analytics for Smart Cities* .9(3), 380. MDPI.

2019

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

-  **Chiatti, A.**, Bardaro, G., Bastianelli, E., Tiddi, I., Mitra, P. and Motta, E. [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 2019)*. CEUR.
-  Bardaro, G., Semperebon, A., **Chiatti, A.**, and Matteucci, M. [From Models to Software Through Automatic Transformations: An AADL To ROS End-to-End Toolchain](#). In *Proceedings of the Third International Workshop on New Frontiers in Computational Robotics (NFCR '19)*. IEEE.
-  Hoque, MRU, Bradley, D., Kwan, C., **Chiatti, A.**, Li, J., and Wu, J. [Searching for Evidence of Scientific News in Scholarly Big Data](#). In *Proceedings of the 10th International Conference on Knowledge Capture (K-CAP 2019)*. ACM.


2018

-  **Chiatti, A.**, Cho, M. J., Gagneja, A., Yang, X., Brinberg, M., Roehrick, K., Choudhury, S. R., Ram, N., Reeves, B. and Giles, C. L. [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 2018)*. Pau, France. April 9-13, 2018.


2017

-  **Chiatti, A.**, Yang, X., Brinberg, M., Cho, M.J., Gagneja, A., Ram, N., Reeves, B., and Giles, C. L. [Text Extraction from Smartphone Screenshots to Archive in situ Media Behavior](#). In *Proceedings of the 9th International Conference on Knowledge Capture (K-CAP 2017)*. Austin, TX, USA. December 4-6, 2017.
-  Wu, J., Choudhury, S.R., **Chiatti, A.**, Liang, C. and Giles, C. L. [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. Toronto, ON, Canada, June 19-23, 2017.

2015

-  **Chiatti, A.**, Dragisic, Z., Cerquitelli, T. and Lambrix, P. [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, 2015.

MENTORING & TEACHING

-  **(June - Aug 2021)**. Co-supervisor, with [Dr. Enrico Daga](#), of two visiting Bachelor Students from Amity University (India) on **applications of Deep Learning** and

Knowledge Engineering for Cultural Heritage.

- **(June - Aug 2021).** Lead supervisor of a Year 12 student for the [KMi Summer Scholarship for Black Asian and Minority Groups \(BAME\)](#) on a 6-week project. The project was aimed at providing the summer scholar with an practical introduction to the fundamentals of Robotic Programming and sensory data analysis. Under mine and [Dr. Gianluca Bardaro](#)'s supervision, the scholar developed a system for recommending the most ergonomic monitor configuration for a given user, based on data captured through a camera sensor.
- **(Oct 2020 -April 2021)** mentor of a visiting high school student on an Introductory project to **Machine Learning for Vision** and **Image Segmentation**.
- **(Spring 2018)** TA for Penn State IST 441 - specialty class on **Information Retrieval and Search Engines** offered to senior undergraduate and graduate students.
- **(Fall 2016)** TA for Penn State IST 210 - sophomore-level required class on **Organization of Data**.

TECHNICAL SKILLS

Object-oriented programming: Python (advanced level), Java + {Java in Android SDK}, R, Matlab, C++ (very basic level).

Image Processing: OpenCV (2D), Open3D (3D).

Machine Learning: Scikit-learn, Pytorch and Keras for Deep Learning.

Robotics: Robot Operating System (ROS), rosbag data/logs manipulation in Python.

Data Analysis: SQL (SQLServer), MongoDB, Excel VBA, MS Access, RapidMiner.

Geographic/Spatial Information Systems: PostGIS, PostGRESQL, Esri ArcGIS, QGIS.

Information Retrieval: Apache Solr + Elasticsearch Lucene, Heritrix (Web crawling).

Ontologies: RDF, OWL format, JSON for Linked data (JSON-LD).

Web Design: HTML, CSS, Django, SQL+PHP, Javascript

Cloud Systems: Google Cloud (storage, UNIX-based Virtual Machine setup and package installations), building Docker images for remote servers (CPU and GPU environments).

Functional testing: Selenium (Web) and SoapUI (A2A).

ORGANISATIONAL SKILLS

Co-host of the [KMi Maven of the Month series](#), where top experts known internationally (i.e., mavens or connoisseurs) discuss the broad sociotechnical impact of Artificial Intelligence and Computing technologies with staff and student members of the Open University.

Co-organiser of the 2021 OU PhD student conference, a yearly forum (internal to the Open University) for PhD students in KMi and the School of Computing and Communications to present their work.

PC MEMBERSHIPS/ REVIEWING

Program Committee member of the [DARLI-AP workshop](#) since 2018.

Journal reviewing: [Information Systems Frontiers](#), Semantic Web Journal 2021 Special issues on Cultural Heritage and Deep Learning for Knowledge Graphs (DeepL4KGs).

Conference reviewing: [ICDAR 2017](#), [TheWebConf 2019](#), [CIKM 2020](#), [TheWebConf2021](#), [CHI2021](#) (Late-Breaking Work track).

AWARDS AND SCHOLARSHIPS

Recipient of the Christine Collet EDBT/ICDT Student Participation Award to attend [the 22nd International joint EDBT/ICTD conference](#), to be held on March 25-29, 2019, in Lisbon, Portugal.

Selected to participate in the [2018 CRA-W Grad Cohort workshop](#) on April 12-14, 2018 in San Francisco, CA.