FRANCESCA MOSCA

Final Year PhD Candidate in Computer Science - Artificial Intelligence

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PROFILE

- Research focused on human-centered AI (value-aligned and explainable) to improve people's online experience.
- Design of multi-agent systems with qualitative & quantitative evaluation for collaboratively managing online privacy.
- Passionate and committed to deeply understand real-world problems and develop innovative solutions.

EDUCATION

PhD in Computer Science @ King's College London

Oct 2017 – Present London, UK

- Agent-based Modelling, Explainable AI, Human-Computer Interaction, Computational Social Choice, Privacy

MSc Degree in Intelligent Systems @ King's College London

Sep 2016 – Sep 2017 London, UK

- Awarded with Distinction; Core Modules: Artificial Intelligence, Multi-Agent Systems, Computer Vision, Pattern Recognition, Machine Learning

MSc Degree in Mathematical Engineering @ Politecnico di Torino

Dec 2013 – Dec 2015 Torino, Italy

- Awarded with Distinction (score 107/110); Core Modules: Business Intelligence, Database Management Systems, Statistical Models and Stochastic Processes, Cryptography and Information Theory, Financial Engineering

BSc Degree in Applied Mathematics @ Politecnico di Torino

Oct 2010 – Dec 2013 Torino, Italy

WORKING EXPERIENCE

PhD Research @ King's College London

Oct 2017 – Present London, UK

My research focuses on *human-assisting AI* applications for collaboratively managing *privacy* on social networks. When users have different preferences regarding the online sharing of co-owned content, e.g. a picture depicting multiple people, conflicts arise. Hence, I designed and modelled *explainable and value-aligned* autonomous agents for solving this type of conflicts. According to the *software simulations and user studies* that I have conducted, these agents would offer a better support for social networks users compared to the approaches currently available in the related literature or in real-world platforms like Facebook.

Graduate Teaching Assistant @ Dept. of Informatics - King's College London

Oct 2017 – Present London, UK

- Leading small group tutorials and lab sessions for Masters level modules (Agents and Multi-Agent Systems, Artificial Intelligence, Cryptography, Data Mining)
- *Buddy* (Student Mentor) for the UKRI CDT in Safe and Trusted Artificial Intelligence program

Data Scientist @ Reply Ltd - Machine Learning IT

Apr 2016 – Sep 2016 Torino, Italy

- Project: Automation of management control and anomalies detection

Teaching Assistant @ Dept. of Informatics - Politecnico di Torino

Mar 2015 – Jul 2015 Torino, Italy

- Supporting students during lab sessions for Undergraduate level modules (Computer Science, Operational Research)

RELEVANT SKILLS AND EXPERIENCE

- Analysis and deep understanding of application context and relevant literature
- *Requirements-driven design* of solutions
- *Formal proofs* of the designed theoretical models
- *Software simulations* for validating the theoretical model (python: networkx, pandas, scipy, matplotlib)
- *Qualitative UX research*: based on interdisciplinary studies (e.g., social science, psychology, privacy), design of both within-subjects and between-subjects user studies to evaluate users' attitudes and preferences
- Implementation of a *web platform* to conduct the user studies (html, css, python:Flask) and recruitment of suitable candidates (Prolific)
- *Quantitative UX research*: statistical analysis of user studies results (python: pandas, scipy, matplotlib) to evaluate the significance and effect size of the findings
- Writing *academic papers* for top AI conferences and internal *progress reports*
- Experience with Matlab (Advanced Computing, Pattern Recognition and Computer Vision courseworks)
- Familiarity with SQL and R (Statistics, Database Management Systems and Business Intelligence courseworks; main tools when working as data scientist in Reply Ltd)
- *Presenting* my work to both expert (e.g., in conferences and workshops) and not-expert audiences (e.g., guest lecture in MSc course)
- Co-founder and Editor of *OHAAI* - Online Handbook of Argumentation for Artificial Intelligence (https://ohaai.github.io/)
- Co-organiser (Publicity Chair) of the Workshop on Artificial Intelligence for Privacy (AI4P) @ ECAI 2020
- Successful team-working abilities, proven by the positive outputs of the OHAAI project and during the Team Competition COVID-19 Response Challenge at AAMAS 2020
- Reviewer for *IEEE Transactions on Dependable and Secure Computing*, *ACM Transactions on Internet Technology* and *Future Generation Computer Systems*
- Native Italian speaker, fluent in English, beginner in French and Romanian

GRANTS AND AWARDS

- *NMS Faculty Studentship Scheme*, King's College London (2017 – 2021)
- *AAMAS 2020 Student Grant* sponsored by the Artificial Intelligence Journal
- Winner of the Team Competition COVID-19 Response Challenge @ AAMAS DC 2020
- Winner of the People's Choice Award at the Research Spotlight Competition @ London Hopper Colloquium 2020

CERTIFICATIONS

- *Nature Masterclass*, Scientific Writing and Publishing (Three Parts) - June 2020
- Associate Fellow of Higher Education Academy - April 2019

PUBLICATIONS

Conference Proceedings

- Mosca, Francesca (2020). "Value-Aligned and Explainable Agents for Collective Decision Making: Privacy Application". In: *Proceedings of the 19th International Conference on Autonomous Agents and MultiAgent Systems*, pp. 2199–2200.
- Mosca, Francesca, Ştefan Sarkadi, et al. (2020). "Agent EXPRI: Licence to Explain". In: *International Workshop on Explainable, Transparent Autonomous Agents and Multi-Agent Systems*. Springer, pp. 21–38.
- Mosca, Francesca, Jose M Such, and Peter McBurney (2020). "Towards a Value-driven Explainable Agent for Collective Privacy". In: *Proceedings of the 19th International Conference on Autonomous Agents and MultiAgent Systems*, pp. 1937–1939.
- – (2019). "Value-driven collaborative privacy decision making". In: *Proceedings of the AAAI Spring Symposium on Privacy-Enhancing Artificial Intelligence and Language Technologies (PAL)*.

Edited Books

- *Online Handbook of Argumentation for AI* (2020). Vol. 1. In Press. ArXiv.

TALKS

Human-centered AI for Multiuser Privacy @ London Hopper Colloquium

October 2020 — Virtual Event

EXPRI, Agent EXPRI: Licence to Explain @ EXTRAAMAS

May 2020 — Virtual Event

Value-Aligned and Explainable Agents for Collective Decision Making: Privacy Application @ AAMAS Doctoral Consortium

May 2020 — Virtual Event

Towards a Value-driven Explainable Agent for Collective Privacy @ AAMAS

May 2020 — Virtual Event

Value-driven Collaborative Privacy Decision Making @ AAAI Spring Symposium

March 2019 — Stanford, CA

Automated Value-driven Decision Making for Privacy @ Reasoning and Planning Seminar, King's College London

March 2019 — London, UK

Design of a Value-driven Decision Making Mechanism for Privacy @ Guest Lecture for Advanced Research Topics in Computer Science, King's College London

Nov 2018 — London, UK

POSTER PRESENTATIONS

Human-centered AI for Multiuser Privacy @ SophI.A Summit 2020 Conference

November 2020 — Virtual Event

EXAMPLE: an Explainable Agent for Avoiding Multiparty Privacy LEaks @ NMS Faculty Poster Competition

November 2019 — King's College London

Value-driven Collaborative Privacy Decision Making @ AAAI Spring Symposium

March 2019 — Stanford, CA