

Alessandra Mileo

## PERSONAL INFORMATION

Name: Alessandra Mileo  
ORCID: [orcid.org/0000-0002-6614-6462](https://orcid.org/0000-0002-6614-6462)  
Phone no.: 00353 1 7005936  
Website URL: <https://www.insight-centre.org/users/alessandra-mileo>  
<http://www.computing.dcu.ie/~amileo/index.html>

## Brief Career Profile

I am a Tenured Assistant Professor in the School of Computing, Funded Investigator at the Insight Centre for Data Analytics and the Advanced Manufacturing Research Centre, Dublin City University. Previous to that I was a Senior Research Fellow, Adjunct Lecturer and Unit Leader at the INSIGHT Centre for Data Analytics, NUI Galway, since 2010. I have secured over 1 million euros in funding including national (SFI, IRC), international (EU, NSF) and industry-funded projects, publishing 90+ papers mostly in high impact journals and conferences. I am an active PC member of over 20 top-ranked conferences and high-impact journals in my areas of interests within Artificial Intelligence, including Stream Reasoning, Internet of Things, Decision Support Systems, Automated Reasoning, Semantic Web, Logic Programming, Knowledge Discovery and Knowledge Representation.

## EDUCATION (HIGHEST DEGREE)

- 2006 PhD in Computer Science (First Class Honor), University of Milan, Italy  
PhD supervisor: Dr. Alessandro Provetti, Birkbeck University, London, UK
- 2007 Master of Advanced Studies in Organization and Sociology of Sports  
University of Milano Bicocca, Milan, Italy
- 2002 Graduation in Computer Science, University of Milan, Italy

## WORK EXPERIENCE

**01/09/2016 – now.** Assistant Professor, School of Computing, Dublin City University. Funded Investigator at the INSIGHT Centre for Data Analytics and Funded Investigator at the I-Form Advanced Manufacturing Research Centre, Dublin City University Dublin, Ireland

**10/10/2010 – 31/08/2016.** Senior Research Fellow, Adjunct Lecturer and Unit Leader at the INSIGHT Centre for Data Analytics (formerly DERI), NUI Galway, Ireland

**01/09/2006 – 09/10/2010.** Postdoctoral Research Fellow at the Department of Informatics, Systems and Communication, University of Milan-Bicocca, Milan, Italy

## FUNDING HISTORY

01/08/2018 – 31/12/2019. **Knowledge-Informed Deep Representation Learning [€40K Industry].** Principal investigator. Direct personal industry donation from Nokia Bell-Labs.

01/12/2018 – 30/11/2022. **Enhancing Explainability of Deep-Learning by combining Neural and Symbolic reasoning [€147K Total].** Principal Supervisor. Project sponsored under the SFI-PhD scheme for the recruitment of one PhD candidate.

01/09/2015 – 31/08/2016. **IoE Learning in the Cloud [€150K Total, €50K from Industry].** Scientific Leader and PI. Project sponsored by Cisco Research as a Targeted Project within INSIGHT at NUI Galway (SFI/12/RC/2289).

## Curriculum Vitae, June 2020

Alessandra Mileo

01/01/2014 – 30/06/2015. **Enabling the Internet of Everything [€200K Total, €86K from Industry]**. Scientific Leader and PI. Project sponsored by Cisco Research in 2014 as a Targeted Project within INSIGHT at NUI Galway (SFI/12/RC/2289).

01/09/2013 – 31/08/2016. **CityPulse: Real-Time IoT Stream Processing and Large-scale Data Analytics for Smart City Applications [€2.5M Total, €360K to NUIG]**. CityPulse was an EU funded project under the FP7 Scheme. Principal Investigator and Work Package leader for Real-time IoT Intelligence (EU/FP7-ICT/609035).

**Other Funding:** As a member of the Steering Committee of the Web Reasoning and Rule Systems Association, I have acted as co-PI in obtaining NSF sponsorships for several US students to participate to the Reasoning Web Summer School in 2012 and in 2013. I have been supervising 2 successful IRC GOIP Scheme applications in the last 4 years. I am also a named supervisor in two SFI Centers for Research Training in Artificial Intelligence (SFI-CRT in AI) and in Machine Learning (SFI CRT ML-Labs).

### SUPERVISION OF GRADUATE STUDENTS AND POSTDOCTORAL FELLOWS

Department, Name of Institution, Country	MSc by Research		PhD students		Postdoctoral Fellows	
	Ongoing	Completed	Ongoing	Completed	Ongoing	Completed
INSIGHT, NUI Galway Ireland		1		5		2
INSIGHT, Dublin City University, Ireland			3			

### TEACHING ACTIVITIES

My Teaching activities in the last 5 years are summarised in the table below.

Module code	Title	Level (1-5)	Module credits
CA120	Collaboration and Innovation	1	5
CA222	Enterprise Information Systems	2	5
CA279	Professional Practice for Enterprise Computing	2	5
CA652/A	Artificial Intelligence, Information and Information Seeking	5	7.5
CA652D	Artificial Intelligence, Information and Information Seeking	5	10
CA675	Cloud Technologies	5	7.5
CA687	Cloud Systems (Skillnet/Future Learn)	5	7.5
CA121	Data Analysis and Visualisation	2	5
DM110	Emerging Web Media	5	5
CT5105	Tools and Techniques for Large Scale Data Analytics	5	5

Alessandra Mileo

## CAREER DEVELOPMENT

As part of my career development, I have engaged in teaching enhancement activities, successfully completing the following training in Dublin City University:

- 2019 Research Ethics (accredited by Epigeum)
- 2019 Unconscious Bias
- 2018 Intellectual Property
- 2018 Supervising the PhD process
- 2017 LI501 – Assessment and Feedback (accredited by DCU)
- 2017 Enhancing your Teaching Portfolio
- 2017 Chairing and Examining a Viva

## RECENT COLLABORATIONS AND STANDARDIZATION ACTIVITIES

The most relevant collaborations in my discipline include: **Prof. Amit Sheth** (Wright-State University, Dayton, Ohio, USA) and **Dr. Payam Barnaghi** (University of Surrey, UK) on *Real-Time IoT Stream Processing and Large-scale Data Analytics for Smart City Applications*; **Prof. Alan Smeaton** and **Dr. Cathal Gurrin** (INSIGHT Centre for Data Analytics, Dublin City University, Ireland) on *semantic event characterization for Lifelogging*; **Prof. Frank Van Harmelen** (VU Amsterdam) on *Interpreting neural networks through Graph Analysis*; **Prof. Denis Dowling** (School Of Mechanical & Materials Engineering, UCD) on *Deep Learning and Knowledge Discovery for Additive Manufacturing*; **Prof. Noel O'Connor** (Insight Centre for Data Analytics, Dublin City University) on *deep representations and semantics for understanding fan engagement (Smart Stadium)*.

Industry collaborations include: **Cisco Systems** (Galway, Ireland) on *smart enterprise and internet of things*; **Siemens** (Vienna, Austria; Braşov, Romania) on *smart cities*; **Dell-EMC** (Cork, Ireland) on *large-scale distributed semantic stream processing*; and more recently: **Nokia-Bell Labs** on *Hybrid Stream Reasoning and Knowledge-informed Deep Representation Learning*; **Huawei** (Ireland Research Centre) on *RDF Stream Processing and Stream Reasoning in Telecom Network Operations*.

My involvement in standardization within W3C fostered collaborations in the area of *RDF Stream Processing and Distributed Event-based systems* with **Prof. Emanuele Della Valle** (Politecnico di Milano, Italy) and **Prof. Abraham Bernstein** (University of Zurich, Switzerland) on *standardization of continuous RDF query processing, event processing and stream reasoning*. Past interdisciplinary collaborations include: **Dr. Kah-Tong SEOW** (Founder and Program Director at Frankfurt Health Oasis, Frankfurt, Germany) on *personalized healthcare*; **Dr. John Connolly** (History and Geography, Dublin City University, Ireland) on *semantic characterization of Earth Observation Data for continuous monitoring*; **Prof. Thomas Scharf**, (Director of the Irish Centre for Social Gerontology, NUI Galway), on *Behavior monitoring for Assisted Living*.

Alessandra Mileo

**SELECTED RECENT PUBLICATIONS [2015-2020]**

- [1] Vitor A.C Horta, Ilaria Tiddi, Suzanne Little, Alessandra Mileo: Extracting Knowledge from Deep Neural Networks through Graph Analysis. *Future Generation Comp. Sys.* In Press. (2020)
- [2] Sefki Kolozali, María Bermúdez-Edo, Nazli FarajiDavar, Payam M. Barnaghi, Feng Gao, Muhammad Intizar Ali, Alessandra Mileo, Marten Fischer, Thorben Iggena, Daniel Kuemper, Ralf Tönjes: Observing the Pulse of a City: A Smart City Framework for Real-Time Discovery, Federation, and Aggregation of Data Streams. *IEEE Internet Things J.* 6(2): 2651-2668 (2019)
- [3] Thu-Le Pham, Muhammad Intizar Ali, Alessandra Mileo: Enhancing the scalability of expressive stream reasoning via input-driven parallelization. *Semantic Web* 10(3): 457-474 (2019)
- [4] Alessandra Mileo, Minh Dao-Tran, Thomas Eiter and Michael Fink (2017) Stream Reasoning. In: Ozsu, M. Tamer and Liu, Ling, (eds.) *Encyclopedia of Database Systems 2017. Encyclopedia of Database Systems, Volume 1, 2nd Edition* . Springer-Verlag, New York, USA. ISBN 9781461482666
- [5] Gao, F., Ali, M.I., Curry, E., Mileo, A.: Automated discovery and integration of semantic urban data streams: The ACEIS middleware. *Future Generation Comp. Syst.* 76 (2017) 561–581
- [6] Kirrane, S., Mileo, A., Decker, S.: Access control and the resource description framework: A survey. *Semantic Web* 8(2) (2017) 311–352
- [7] Muhammad Intizar Ali, Naomi Ono, Mahedi Kaysar, Zia Ush-Shamszaman, Thu-Le Pham, Feng Gao, Keith Griffin, Alessandra Mileo: Real-time data analytics and event detection for IoT-enabled communication systems. *J. Web Semant.* 42: 19-37 (2017)
- [8] Dan Puiu, Payam M. Barnaghi, Ralf Toenjes, Daniel Kuemper, Muhammad Intizar Ali, Alessandra Mileo, Josiane Xavier Parreira, Marten Fischer, Sefki Kolozali, Nazli FarajiDavar, Feng Gao, Thorben Iggena, Thu-Le Pham, Cosmin-Septimiu Nechifor, Daniel Puschmann, João Fernandes: CityPulse: Large Scale Data Analytics Framework for Smart Cities. *IEEE Access* 4: 1086-1108 (2016)
- [9] Matthias Nickles, Alessandra Mileo: A System for Probabilistic Inductive Answer Set Programming. *SUM 2015*: 99-105