

Emanuele Sansone

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Education

2013-2018	<p>Ph.D. <i>ICT doctoral school, University of Trento, Italy</i></p> <p>Thesis: "Towards Uncovering the True Use of Unlabeled Data in Machine Learning"</p> <p>Advisor: Prof. Francesco G.B. De Natale. Examiners: Paolo Frasconi, Fabio Roli, Farid Melgani.</p> <p>Dissertation on the usage of unlabeled data in different areas of machine learning, including positive unlabeled and semi-supervised learning.</p>
2011-2012	<p>M.Sc. in Telecommunications Engineering (cum laude) University of Trento, Italy</p> <p>110/110 <i>summa cum laude</i> Gpa: 28.82/30</p> <p>Thesis: "Multimodal Photo Galleries Synchronization"</p> <p>Advisor: Prof. Nicola Conci, Giulia Boato.</p> <p>Computer vision application for automatic synchronization of photo galleries from multiple users attending the same event (C++ language).</p>
2008-2010	<p>B.Sc. in Telecommunications Engineering University of Trento, Italy</p> <p>Thesis: "Master P-NET protocol implementation on PIC 32 architecture"</p> <p>Advisor: Prof. Dario Petri, Eng. Michele Corrà.</p> <p>Programming a master device in a network composed by different sensors and actuators. Implementation of P-NET protocol over a PIC 32 microcontroller (C language).</p>

Research Experience

2020-to date	<p>PostDoc Researcher <i>KU Leuven, Leuven, Belgium</i></p> <p>Conducting research on topics related to representation and statistical relational learning.</p> <p>Coordinating the research activities for a work package of the TAILOR (Trustworthy AI: Integrating Learning Optimization and Reasoning) European research network of excellence together with Prof. Luc De Raedt. The goal of the work package is to unify the different paradigms of learning (based on deep learning) and reasoning (based on logic, knowledge graphs and constraints). See the website of the work package for further details.</p> <p>Supervision of Master Students:</p> <p>2022-2023 - Vincenzo Collura: "What are the Next Measurable Challenges/Benchmarks for Neuro-Symbolic Learning?". KU Leuven</p> <p>2021-2022 - Ioannis Lamprou: "Assessing the Use of Deep Learning in Combinatorial Optimization". KU Leuven</p> <p>2021-2022 - Rijo John Zachariah: "Gradient-Based Approximate Inference in Large Weighted Propositional Logic Programs". KU Leuven</p> <p>2021-2022 - Rik Bossuyt: "Predicting SAT with Graph Neural Networks". KU Leuven</p> <p>2020-2021 - Eleonora Misino: "Deep Generative Models with Probabilistic Logic Priors". University of Bologna</p> <p>Supervision of Honor Students:</p> <p>2021-2022 - Xander Haijen: "Comparison of Reinforcement Learning Methods Applied to Tetris". KU Leuven</p>
2018-2020	<p>Research Scientist <i>Huawei Technologies R&D, London, UK</i></p> <p>Working in the area of deep generative models and self-supervised learning. Supervising students on using machine learning for applications related to the company: Yinbai Li (Bachelor student in Mathematics at University of Cambridge), Xingyu Jin (Master student in Computer Science at University of Edinburgh).</p>
2018-to date	<p>Professional Service</p> <p>Serving as a reviewer for international journals in the area of machine learning and signal processing, such as IEEE Transactions on Neural Networks and Learning Systems, Machine Learning (Springer) and IEEE Transactions on Image Processing.</p> <p>Serving as a reviewer at the major machine learning conferences, like ICLR (2021,2022,2023), NeurIPS (2021,2022), ICML (2022,2023), AISTATS (2022,2023) and ECML-PKDD - Research Track (2021)</p>

2015-2016	Research Internship <i>LAMDA group, Nanjing University, China</i> Advisor: Prof. Zhi-Hua Zhou. Working on positive unlabeled learning.
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Teaching Experience

2022	Teaching Assistant, Uncertainty in Artificial Intelligence (B-KUL-H00H2a) <i>M.Sc. in Computer Science, KU Leuven, Belgium</i>
2020 - 2022	Teaching Assistant, Machine Learning and Inductive Inference (B-KUL-H00G6a) <i>M.Sc. in Artificial Intelligence, KU Leuven, Belgium</i>
2016	Teaching Assistant, Computer Vision (Code 140266) <i>M.Sc. in Telecommunications Engineering, University of Trento, Italy</i>
2015	Teaching Assistant, Multimedia Networking (Code 140151) <i>M.Sc. in Telecommunications Engineering, University of Trento, Italy</i>

Publications

2022	GEDI: Generative and Discriminative Training for Self-Supervised Learning E. Sansone, R. Manhaeve under review at IEEE Transactions on Pattern Analysis and Machine Intelligence (TPAMI)
2022	VAEL: Bridging Variational Autoencoders and Probabilistic Logic Programming E. Misino, G. Marra, E. Sansone Neural Information Processing Systems (NeurIPS), [Code]
2022	LSB: Local Self-Balancing MCMC in Discrete Spaces E. Sansone International Conference on Machine Learning (ICML), [Code]
2021	Leveraging Hidden Structure in Self-Supervised Learning E. Sansone arXiv pre-print
2020	Coulomb Autoencoders E. Sansone, H. T. Ali, J. Sun European Conference on Artificial Intelligence (ECAI)
2018	Towards Uncovering the True Use of Unlabeled Data in Machine Learning E. Sansone PhD Thesis
2018	Efficient Training for Positive Unlabeled Learning E. Sansone, F.G.B De Natale, Z.H. Zhou IEEE Transactions on Pattern Analysis and Machine Intelligence (TPAMI), [Code]
2017	Automatic Synchronization of Multi-User Photo Galleries E. Sansone, K. Apostolidis, N. Conci, G. Boato, V. Mezaris, F.G.B. De Natale

	IEEE Transactions on Multimedia (TMM), [Code]
2017	Training Feedforward Neural Networks with Standard Logistic Activations is Feasible E. Sansone, F.G.B. De Natale arXiv pre-print
2016	Classtering: Joint Classification and Clustering with Mixture of Factor Analysers E. Sansone, A. Passerini, F.G.B. De Natale European Conference on Artificial Intelligence (ECAI), [Code]
2014	Synchronizing Multi-User Photo Galleries with MRF E. Sansone, G. Boato, MS. Dao MediaEval Workshop
2013	Event Clustering and Classification from Social Media: Watershed-based and Kernel Methods TV. Nguyen, MS. Dao, R. Mattivi, E. Sansone, F.G.B. De Natale, G. Boato MediaEval Workshop

Invited Talks

2019	Coulomb Autoencoders Symposium on Deep Generative Models, British Computer Society (London, UK)
2017	Generative Adversarial Networks Fondazione Bruno Kessler (Trento, Italy)

Awards

2021-2022	Outstanding Reviewer Award ICLR 2021 (top 12%), ICML 2022 (top 10 %), NeurIPS 2022
2016	Academic Hardware Grant Award, NVIDIA Award consisting of a NVIDIA Titan X GPU for research proposal.
2012	Merit Award, University of Trento Award assigned to distinguished master students

Summer Schools/Learning Certificates

2022	European Summer School in Logic, Computation and Information (ESSLLI 2022) <i>Galway, Ireland</i> National University of Ireland Galway - In-person
2020	Algorithms Specialization Coursera (Stanford University) - Online
2018	Full Stack Deep Learning Bootcamp <i>Berkeley, USA</i>

	University of California, Berkeley - In-person
2017	Neural Networks for Machine Learning Coursera (University of Toronto) - Online
2015	Machine Learning Summer School <i>Austin, USA</i> University of Texas at Austin - In-person

Sport Professional Experience (Coaching Skills)

2011-to date	<p>Ski master instructor (Italy)</p> <p>This is the highest professional degree in alpine skiing (the total number of ski master instructors in Italy is around 200), which can be achieved by demonstrating excellent skiing capabilities as well as strong organizational, didactical and methodological skills used when coaching.</p> <p>I hold several professional education and training courses for ski instructors and candidate ski instructors. The following is a list of people I prepared to become ski instructors (all of them are now either coaches and/or ski instructors): Alessandro Berlanda, Camilla Berlanda, Martina Kerschbaumer, Davide Raineri, Valentina Zampedri, Erman Baldessari, Federico Tonezzer, Martina Longobardi, Chiara Villotti, Stefano Gonzo, Francesca Cella, Samuel Piffer, Teo Valle, Martino Santoni, Emma Santoni, Thomas Corradino, Silvia Zeni, Marco Faccenda.</p>
2007-2017	<p>Ski coach (Italy)</p> <p>Coach of young athletes (6-20 years old) in several racing ski teams: Ski Team Sopramonte (2007/2008), Sci Club Padova (2008/2009), Sci Club Panarotta (2009-2011), Ski Team Paganella (2013/2014), Campiglio Ski Team (2016/2017).</p>
2002-2007	<p>Ski athlete (Italy)</p> <p>Participating in many international competitions. See a sample list of records.</p>

Sport Certificates

2011	<p>Ski Master Instructor</p> <p><i>Milan, Italy</i></p> <p>Organization: FISI, CoScuMa</p>
2011	<p>Ski Coach (3° level)</p> <p><i>Milan, Italy</i></p> <p>Organization: FISI, STF</p>
2007	<p>Ski Instructor</p> <p><i>Trento, Italy</i></p> <p>Organization: PAT</p>

Languages

Italian:	Mothertongue
English:	Fluent (C2)
German:	Fluent (B2)