Andrea Dittadi

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Experience

Jun–Sep 2021 **Research Intern**
Amazon, Tübingen, Germany
Out-of-distribution generalization of large vision models in transfer learning.
Supervised by Francesco Locatello and Peter Gehler.

Sep–Nov 2020 **Research Intern**
Microsoft Research, Cambridge, UK
Generative models for human pose estimation from partial observations.
Supervised by Tom Cashman and Ben Lundell.

Feb–Aug 2020 **Research Intern**
Max Planck Institute for Intelligent Systems, Tübingen, Germany
Generalization of disentangled representations in a robotic setting.
Supervised by Bernhard Schölkopf and Stefan Bauer.

Sep 2017–Mar 2018 **Research Assistant**
Technical University of Denmark, Copenhagen, Denmark

2016–2019 **Teaching Assistant**
Technical University of Denmark, Copenhagen, Denmark
Courses: Deep Learning, Artificial Intelligence and Multi-agent Systems, Computationally Hard Problems, Logical Theories for Uncertainty and Learning.

Education

2018–present **Technical University of Denmark**, Copenhagen, Denmark
PhD in Machine Learning and Artificial Intelligence
Primarily focused on representation learning and deep generative models.
Supervised by Ole Winther and Thomas Bolander.

2015–2017 **Technical University of Denmark**, Copenhagen, Denmark
MSc in Computer Science and Engineering, *thesis grade 12/12*
Machine learning, artificial intelligence, algorithms.
Thesis on combining neural networks and automated planning.

2014–2017 **University of Padua**, Italy
MSc in Telecommunication Engineering, *110/110 with honors*
Signal processing, stochastic processes, communication systems, computer vision.
Selected for T.I.M.E. double degree program at the Technical University of Denmark.

2011–2014 **University of Padua**, Italy
BSc in Information Engineering, *110/110 with honors*
Maths, physics, computer science, statistics, signal processing.

Publications

1. A. Dittadi, S. Papa, M. De Vita, B. Schölkopf, O. Winther, F. Locatello. *Generalization and Robustness Implications in Object-Centric Learning*. **ICML** 2022.

2. A. Dittadi[*], F. Träuble[*], M. Wüthrich, F. Widmaier, P. Gehler, O. Winther, F. Locatello, O. Bachem, B. Schölkopf, S. Bauer. *The Role of Pretrained Representations for the OOD Generalization of Reinforcement Learning Agents*. **ICLR** 2022.

3. S. Bing, A. Dittadi, S. Bauer[†], P. Schwab[†]. *Conditional Generation of Medical Time Series for Extrapolation to Underrepresented Populations*. **PLOS Digital Health**, 2022.

4. S. Papa, O. Winther, A. Dittadi. *Inductive Biases for Object-Centric Representations in the Presence of Complex Textures*. **ICML Workshop** on Dynamic Neural Networks and UAI Workshop on Causal Representation Learning, 2022.

5. C. Eastwood, A. L. Nicolicioiu, J. von Kügelgen, A. Kekic, F. Träuble, A. Dittadi, B. Schölkopf. *On the DCI Framework for Evaluating Disentangled Representations: Extensions and Connections to Identifiability*. **UAI Workshop** on Causal Representation Learning, 2022.

6. F. Wenzel, A. Dittadi, P. Gehler, C. J. Simon-Gabriel, M. Horn, D. Zietlow, D. Kernert, C. Russell, T. Brox, B. Schiele, B. Schölkopf, F. Locatello. *Assaying Out-Of-Distribution Generalization in Transfer Learning*. Under review, 2022.

7. T. Höppe, A. Mehrjou[†], S. Bauer[†], D. Nielsen[†], A. Dittadi[†]. *Diffusion Models for Video Prediction and Infilling*. arXiv:2206.07696, 2022.

8. D. Chira[*], I. Haralampiev[*], O. Winther, A. Dittadi[†], V. Liévin[†]. *Image Super-Resolution With Deep Variational Autoencoders*. arXiv:2203.09445, 2022.

9. Y. Chen, A. Dittadi, F. Träuble, S. Bauer, B. Schölkopf. *Boxhead: A Dataset for Learning Hierarchical Representations*. **NeurIPS Workshop** on Shared Visual Representations in Human & Machine Intelligence, 2021.

10. A. Dittadi, S. Dziadzio, D. Cosker, B. Lundell, T. Cashman, J. Shotton. *Full-Body Motion from a Single Head-Mounted Device: Generating SMPL Poses from Partial Observations*. **ICCV** 2021.

11. F. Träuble, E. Creager, N. Kilbertus, F. Locatello, A. Dittadi, A. Goyal, B. Schölkopf, S. Bauer. *On Disentangled Representations Learned From Correlated Data*. **ICML** 2021.

12. A. Dittadi[*], F. Träuble[*], F. Locatello, M. Wüthrich, V. Agrawal, O. Winther, S. Bauer, B. Schölkopf. *On the Transfer of Disentangled Representations in Realistic Settings*. **ICLR** 2021.

13. A. Dittadi[*], F. K. Drachmann[*], T. Bolander. *Planning From Pixels in Atari With Learned Symbolic Representations*. **AAAI** 2021.

14. V. Liévin, A. Dittadi, A. Christensen, O. Winther. *Optimal Variance Control of the Score Function Gradient Estimator for Importance Weighted Bounds*. **NeurIPS** 2020.

15. A. Dittadi, O. Winther. *LAVAE: Disentangling Location and Appearance*. **NeurIPS Workshop** on Perception as Generative Reasoning, 2019.

16. V. Liévin, A. Dittadi, L. Maaløe, O. Winther. *Towards Hierarchical Discrete Variational Autoencoders*. Symposium on Advances in Approximate Bayesian Inference (**AABI**), 2019.

17. S. Pálsson[*], S. Cerri[*], A. Dittadi[*], K. Van Leemput. *Semi-Supervised Variational Autoencoder for Survival Prediction*. **MICCAI Workshop** on Brain Lesion, 2019.
18. A. Dittadi, T. Bolander, O. Winther. *Learning to Plan from Raw Data in Grid-based Games*. Global Conference on Artificial Intelligence (GCAI), 2018.
19. A. Biason, A. Dittadi, M. Zorzi. *Spreading and repetitions in satellite MAC protocols*. IEEE International Conference on Communications (ICC), 2016.

[*]Equal contribution. [†]Equal advising.

Summer Schools

Jul 2018 **FoPSS Logic and Learning School**
University of Oxford, UK

Aug 2016 **Advanced Topics in Machine Learning**
Technical University of Denmark, Copenhagen, Denmark

Jul 2016 **Regularization Methods for Machine Learning (RegML)**
University of Genoa, Italy

Academic Community

Reviewer: ICLR, ICML, NeurIPS, AAAI, AAMAS, EUMAS, GCAI
Co-organizer: 2nd Workshop on Current Trends in AI, Copenhagen, Denmark (Nov 2017)

Awards and Scholarships

2020 ELLIS PhD Student (nominated by Ole Winther and Bernhard Schölkopf)
2019 Otto Mønsted Foundation travel grant for NeurIPS
2018 Fully-funded PhD scholarship, Technical University of Denmark
2015 TIME double degree scholarship
2015 Erasmus+ scholarship

Skills

Programming: Python, Java, MATLAB; basic C/C++ and Prolog
Frameworks: PyTorch, Tensorflow
Tools: LaTeX, Git
Languages: Italian (native), English (fluent)