

# 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.

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## 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.

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## Publications

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

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.

S. Bing, A. Dittadi, S. Bauer<sup>†</sup>, P. Schwab<sup>†</sup>. *Conditional Generation of Medical Time Series for Extrapolation to Underrepresented Populations*. **PLOS Digital Health**, 2022.

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

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.

T. Höppe, A. Mehrjou<sup>†</sup>, S. Bauer<sup>†</sup>, D. Nielsen<sup>†</sup>, A. Dittadi<sup>†</sup>. *Diffusion Models for Video Prediction and Infilling*. arXiv:2206.07696, 2022.

D. Chira\*, I. Haralampiev\*, O. Winther, A. Dittadi<sup>†</sup>, V. Liévin<sup>†</sup>. *Image Super-Resolution With Deep Variational Autoencoders*. arXiv:2203.09445, 2022.

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.

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.

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.

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.

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

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

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

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

S. Pálsson\*, S. Cerri\*, A. Dittadi\*, K. Van Leemput. *Semi-Supervised Variational Autoencoder for Survival Prediction*. **MICCAI Workshop** on Brain Lesion, 2019.

A. Dittadi, T. Bolander, O. Winther. *Learning to Plan from Raw Data in Grid-based Games*. Global Conference on Artificial Intelligence (GCAI), 2018.

A. Biason, A. Dittadi, M. Zorzi. *Spreading and repetitions in satellite MAC protocols*. IEEE International Conference on Communications (ICC), 2016.

\*Equal contribution. <sup>†</sup>Equal advising.

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## 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*

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## Academic Community

Reviewer: ICLR, ICML, NeurIPS, AAAI, AAMAS, EUMAS, GCAI

Co-organizer: 2nd Workshop on Current Trends in AI, Copenhagen, Denmark (Nov 2017)

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## 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

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## Skills

Programming: Python, Java, MATLAB; basic C/C++ and Prolog

Frameworks: PyTorch, Tensorflow

Tools: LaTeX, Git

Languages: Italian (native), English (fluent)