Yashas **Annadani**

Master's Student · ETH Zürich

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Education

ETH Zürich — *Zürich, Switzerland*

M.Sc in Electrical Engineering and Information Technology — *Sep. 2018 - Present*

National Institute of Technology - Karnataka (NITK) — *Surathkal, India*

B.Tech in Electrical and Electronics Engineering — *Aug. 2013 - Jun. 2017*

Publications/Preprints

1. **Yashas Annadani**, Jonas Rothfuss, Alexandre Lacoste, Nino Scherrer, Anirudh Goyal, Yoshua Bengio and Stefan Bauer. **Variational Causal Networks: Approximate Bayesian Inference over Causal Structures**. arXiv preprint *arXiv:2106.07635*, 2021.
2. Nino Scherrer, Olexa Bilaniuk, **Yashas Annadani**, Anirudh Goyal, Patrick Schwab, Bernhard Schölkopf, Michael Curtis Mozer, Yoshua Bengio, Stefan Bauer and Nan Rosemary Ke. **Learning Neural Causal Models with Active Interventions**. Submitted, 2021.
3. Felix Leeb, Giulia Lanzillotta, **Yashas Annadani**, Michel Besserve, Stefan Bauer and Bernhard Schölkopf. **Structure by Architecture: Disentangled Representations without Regularization**. arXiv preprint *arXiv:2006.07796*, 2021. (Submitted)
4. **Yashas Annadani** and Soma Biswas. **Preserving Semantic Relations for Zero-Shot Learning**. In *IEEE International Conference on Computer Vision and Pattern Recognition (CVPR)*, 2018.
5. Devraj Mandal, **Yashas Annadani** and Soma Biswas. **GrowBit: Incremental Hashing for Cross-Modal Retrieval**. In *Asian Conference on Computer Vision (ACCV)*, 2018.
6. **Yashas Annadani** and C.V. Jawahar. **Augment and Adapt: A Simple Approach to Image Tampering Detection**. In *IEEE International Conference on Pattern Recognition (ICPR)*, 2018.

Research Experience

Mila — *Montreal, Canada (Remote Work)*

Visiting Researcher — Advisor: Prof. Dr. Yoshua Bengio — *Dec 2020 - Present*

- Working with Alexandre Lacoste on experimental design for structure learning.
- Also working on approximating multimodal posteriors over structural models.

Learning and Adaptive Systems, ETH Zürich — *Zürich, Switzerland*

Master Thesis — Advisor: Prof. Dr. Andreas Krause — *Apr 2020 - November 2020*

- Worked with Jonas Rothfuss and Stefan Bauer on Causal Learning.
- Proposed a variational inference framework for getting uncertainty quantification over Structural Causal Models.
- The key idea is to efficiently parameterise the distribution over graph structures by their adjacency matrices using an autoregressive model.

Max Planck Institute for Intelligent Systems — *Tübingen, Germany*

Guest Scientist — Advisor: Prof. Dr. Bernhard Schölkopf — *Dec 2019 - Present*

- Working with Felix Leeb on Causal Generative Models.
- Proposed a representation learning paradigm wherein the architecture of the network is inspired by Structural Causal Models.
- This work is currently under submission at ICML 2021.

Data Analytics Lab, ETH Zürich — *Zürich, Switzerland*

Semester Thesis — Advisor: Prof. Dr. Thomas Hoffmann — *Mar. 2019 - Jun. 2019*

- Worked on preventing posterior collapse in variational autoencoders using noisy examples with Octavian Ganea and Gary Bècigneul.
- Formulated this problem mathematically from the perspective of factorizability of variational posterior.
- The central idea is to perform inference on data distribution as well as a noisy version of this distribution and have a single inference network to perform inference on both of them (similar to noise contrastive estimation).

CVIT, IIIT Hyderabad *Hyderabad, India*

Research Fellow Advisor: Prof. Dr. C.V. Jawahar *Aug. 2017 - May 2018*

- Worked on image tampering detection in images containing objects and scenes.
- Proposed a method to augment the tampered images using inpainting and compositing schemes. Obtained state-of-the-art results on image tampering detection by training a convolutional neural network using domain adaptation on the augmented images.
- This work resulted in a publication at ICPR, 2018.

Indian Institute of Science *Bengaluru, India*

Visiting Researcher Advisor: Prof. Dr. Soma Biswas *May 2017 - Jul. 2017*

- Worked on zero-shot object classification in images.
- Proposed a method for zero-shot classification by focusing on efficient utilization of the structure of attribute space.
- This work resulted in a publication at CVPR, 2018.

Work Experience

INRIA *Nice, France*

Research Intern Advisor: Dr. Francois Bremond *May 2016 - Aug. 2016*

- Worked on action recognition using RGB and depth data.
- Implemented a siamese convolutional network in which one stream was for RGB and the other for depth.
- Motion features were obtained through LSTM appended to the RGB part of the network. Compact bilinear pooling was used to aggregate outputs over time. Finally, the RGB motion feature stream was fused with static depth feature stream for classification.

Honors & Awards

2016	**Mitacs Globalink Scholarship**, Offered to carry out research internship in Canada (Declined).	
2015	**Chosen Representative for IEEE R10 Congress**, Was one of the **30** IEEE student members from India selected to represent the IEEE student community at the IEEE R10 Congress, Colombo.	*Colombo, Sri Lanka*
2013	**Rank 126**, Among 150,000 entrants in the Karnataka Common Entrance Test.	*Bengaluru, India*
2013	**Top 1%**, JEE Main Entrance Exam, with a state rank of 255.	

Skills

Programming Skills

Python | C/ C++ | Bash familiarity

Toolkits/ Packages

Matlab | OpenCV | Caffe | PyTorch | Tensorflow