Vishaal Udandarao

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Github: vishaal27

Education

2022–present   **University of Tuebingen, Tuebingen, Germany**.
PHD, MACHINE LEARNING

2021–2022   **University of Cambridge, Cambridge, UK**.
MPHIL, MACHINE LEARNING AND MACHINE INTELLIGENCE
Percentage – 77.21/100 (Distinction)

2016–2020   **IIIT Delhi, India**.
BTECH, COMPUTER SCIENCE AND ENGINEERING
GPA – 9.17/10

Publications

- **V. Udandarao***, A. Agarwal*, N. Sachdeva*, R. K. Yadav*, V. Mittal*, A. Gupta, A. Mathur, "EDUQA: Educational Domain Question Answering System Using Conceptual Network Mapping", ICASSP 2019[paper][poster]
- **V. Udandarao***, S.R. Vyalla*, T. Chakraborty "Memeify: A Large-Scale Meme Generation System", CODS-COMAD 2020[paper][code][slides]
- **V. Udandarao***, S. Bhagat*, S. Uppal*, "DisCont: Self-Supervised Visual Attribute Disentanglement using Context Vectors", ICML (MLI4SD workshop) 2020, ECCV (PTSGM workshop) 2020[paper][code][slides]
- **V. Udandarao***, M. Agrawal*, R. Kumar, R.R. Shah, "On the Inference of Soft Biometrics from Typing Patterns Collected in a Multi-device Environment", BigMM 2020[paper][code]
- **V. Udandarao***, A. Agarwal*, A. Gupta, T. Chakraborty, "InPHYNet: Leveraging Attention-based Multitask Recurrent Networks for Multi-label Physics Text Classification", Knowledge Based Systems 2020[paper][code]
- **V. Udandarao***, A. Maiti*, D. Srivatsav*, S.R. Vyalla*, Y. Yin, R.R. Shah, "COBRA: Contrastive Bi-Modal Representation Algorithm", IJCAI (TUSION workshop) 2020[paper][code]
- **V. Udandarao***, S. Nath*, J. Shukla, "It's LeVAsa not LevioSA! Latent Encodings for Valence-Arousal Structure Alignment", CODS-COMAD 2021[paper][code]

Research Experience

Mar'22 – present   **Machine Intelligence Lab, University of Cambridge**.
Advisors: Dr Samuel Albanie, Dr Ankush Gupta

- Research area involves investigating the visual few-shot performance potential of large scale multi-modal foundation models
- Goal is to understand the abilities of two particular few-shot adaptation techniques – adapters and prompt learning

Jul'20 – Jul'21   **Rutgers Machine Learning Lab (RUML), Rutgers University**.
Advisor: Dr Sungjin Ahn

- Research area involves empirical investigation of slot-based and box-based approaches to object centric representation learning.
- Goal is to understand the abilities of slot and box approaches to improve downstream task performance pertaining to different abilities extending to complex morphological scenes.

Mar'20 – Jul'20   **MIDAS Lab, IIIT Delhi**.
Advisors: Dr Rajiv Ratn Shah, Rajesh Kumar

- Research area involves discovery of privacy leaks from behavioural biometric data.
- Goal is to understand the extent of privacy leakage factors that can be exposed based on per-user typing/swipe/gait features using machine/deep learning

Jul'19 – **Infosys Center for Artificial Intelligence (CAI) Lab, IIIT Delhi**.
Aug'20 Advisor: Dr Saket Anand

- Research area involves the unsupervised learning of disentangled representations
- Goal is to learn well disentangled, statistically independent latent factors of variation helping to reduce sample complexity of downstream tasks and generate high fidelity reconstructions

Aug'18 – **Signal Processing and Biomedical Imaging (SBI) Lab, IIIT Delhi**.
Aug'20 Advisors: Dr Anubha Gupta, Dr Tanmoy Chakraborty

- Research area involves the creation of self-learning chatbots for assisting teachers in understanding pedagogical content in a constructive and efficient manner.
- Proposed an educational-domain QA system using concept-network mapping
- Proposed a multi-task multi-label deep learning model for efficient classification of educational-domain corpora.

Industry Experience

July'20 – **Myntra**.
Aug'21 Software Engineer

- Worked in the Myntra Insider team in the Engagement and Retention Labs unit
- Built and deployed scalable APIs to serve a target customer base of around 15m consumers around India
- Mentored 5 software engineering interns on an end-to-end log anomaly detection project

May'19 – **Expedia Group**.
Jul'19 Software Development Intern

- Created and deployed a scalable image ranking solution for images of destination locations
- Conducted extensive statistical tests on a dataset of 10k+ images
- Leveraged deep learning models for scene classification, object detection and aesthetic scoring
- Deployed the model solution on AWS Lambda with an S3 bucket trigger
- Received a pre-placement offer for work done during the internship

Selected Course Projects

Sep'19 – **Model-based RL Approaches: A Comparison**.
Nov'19 Course: Reinforcement Learning
Conducted a comparative analysis on the World Models RL method. Analysed performance tradeoffs on using VAE/AE for vision model and CMA-ES/PEPG for controller optimisation.[slides][code]

Sep'19 – **GREat Expectations**.
Nov'19 Course: Data Science
Modelled graduate school admission procedures for Indian students using predictive modelling. Retrieved large scale datasets of previous graduate school applicants, performed EDA and drew meaningful insights for future applicants.[report][slides][code]

Honors & Awards

- Recipient of HRH The Prince of Wales Commonwealth Scholarship from the Cambridge Trust, 2021-22
- IIIT-Delhi Dean's Award for Academic Excellence 2016-17, 2018-19
- Recipient of the Student Travel Grant from CODS-COMAD 2020 (supported by Elsevier Journal on Artificial Intelligence)
- Was the topper across all schools in the Gulf region in CBSE AISSCE 2016 exams (All India Rank 7)
- Awarded the ISWK Student Achiever Award 2015-16

Teaching

- TA, Deep Learning, Prof. Saket Anand, Spring'20
- TA, Machine Learning, Prof. Jainendra Shukla, Fall'19
- TA, Introduction to Engineering Design, Prof. Aman Parnami, Spring'19
- TA, Linear Algebra, Prof. Samaresh Chaterjee, Fall'18

Co-Curriculars

- Deputy Convenor, Placement Committee, IIIT Delhi
- Organising Team, Esya'17 (Technical Fest, IIIT Delhi)