

Het Shah

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EDUCATION

B.E. Honours Computer Science

Goa, India | Aug 2017 - Aug 2021

BIRLA INSTITUTE OF TECHNOLOGY AND SCIENCE PILANI, K. K. BIRLA GOA CAMPUS

- Major: Computer Science | CGPA: 8.55
- Thesis: Continual Learning for Animal Pose Estimation advised by Prof. Anirban Chakraborty
- Links: Thesis Report

WORK EXPERIENCE

MICROSOFT RESEARCH | RESEARCH FELLOW

Bangalore, India | Jun 2022 - Present

- Working with the PROSE team on **code edits for type changes**.

MICROSOFT RESEARCH | RESEARCH INTERN

Bangalore, India | Jun 2021 – May 2022

- Investigated the use of **program synthesis based neuro-symbolic models** for representing the image data.
- Explored the effectiveness of such models for **extracting data from chart images**.

ESOWC, ECMWF | SUMMER INTERN

Remote | May 2021 – Aug 2021

- Worked on learning a mapping from ERA5 model simulations to satellite observations for Maximum Skin Temperature.
- Achieved **2 Kelvin (35%)** improvement for the UK region, and **1 Kelvin (20%)** improvement for Lower European region.
- Links: **Certificate, Final Presentation**

VCL, INDIAN INSTITUTE OF SCIENCE | RESEARCH INTERN

Bangalore, India | Nov 2020 - June 2021

- Worked on a novel problem of investigating **Incremental Learning for Pose Estimation**.
- Developed a new sampling strategy for building the **exemplar memory using RBF k-DPP**.
- Further developed an **Image Warping Augmentation strategy** to augment the exemplar memory.
- Paper accepted at BMVC 2021.
- Links: **Project Page, Code**

APPCAIR, BITS PILANI, GOA CAMPUS | UNDERGRADUATE RESEARCHER

Goa, India | Jan 2020 - Jan 2021

- Worked on probing the use of **Transformers for simple algorithmic approximations** and **Iterative Knowledge Distillation for Data Free Learning**.
- Work done in collaboration with **TCS-Research**.

BISAG | SUMMER RESEARCH INTERN

Gandhinagar, India | May 2019 - July 2019

- The project, titled "**Texture Segmentation**", aimed at creating a Semantic Segmentation model for locating agricultural patterns specific to Horticulture.
- Created a **novel Remote Sensing dataset** from scratch which could be used by research groups for further study and constructed a **U-Net model** using Keras after considering and experimenting with several other algorithms.
- Links: **Project, Report**

PUBLICATIONS

1. Gaurav Kumar Nayak*, Het Shah*, Anirban Chakraborty. Incremental Learning for Animal Pose Estimation using RBF k-DPP. 2021 British Machine Vision Conference (BMVC).
2. Het Shah*, Ashwin Vaswani*, Tirtharaj Dash, Ramya Hebbalaguppe, Ashwin Srinivasan. Empirical Study of Data-Free Iterative Knowledge Distillation. In: Farkaš I., Masulli P., Otte S., Wermter S. (eds) *Artificial Neural Networks and Machine Learning – ICANN 2021. ICANN 2021. Lecture Notes in Computer Science*, vol 12893. Springer, Cham. https://doi.org/10.1007/978-3-030-86365-4_44

3. Ashwin Vaswani*, Rijul Ganguly*, Het Shah*, Sharan S. Ranjit, Shrey Pandit, and Samruddhi Bothara. An Autoencoder Based Approach to Simulate Sports Games. *7th Workshop on Machine Learning and Data Mining for Sports Analytics at ECML-PKDD 2020*

PROJECTS

KD-Lib

MAY 2020 - PRESENT

- A Pytorch Library that will help extend major works for **Knowledge Distillation, Pruning and Quantization**.
- Lead the project by designing the structure of the library and implementing knowledge distillation algorithms
- The library currently has 400+ stars.
- Links: **Pre-print**, **Code**

GenRL

APR 2020 - SEP 2020

- GenRL is a PyTorch based **Reinforcement Learning library** centered around reproducible and generalizable algorithm implementations
- Contributed to the **DQN, VPG and SARSA** agents, and **vectorized Environments**.
- Links: **Code**

Meme Classification for Combating Online Hate

Nov 2019

- Built a multi-modal model to classify memes into various tasks.
- The model used an Inception-ResNet-v3 for extracting the features of the images of the meme and a GRU network on top of Glove Embedding with Attention.
- Links: **Code**, **Report**

TEACHING AND REVIEWING

Teaching Assistant, Neuromatch Academy - Deep Learning

AUG 2021

- Created content for the topic of "Out of Distribution Learning" and TA for projects and tutorials.
- Links: **Certificate**

Teaching Assistant, Machine Learning, BITS Pilani, Goa Campus

AUG 2020 - DEC 2020

- Responsible for conducting **lab sessions** and designed the **project assignments** for 120 undergraduate students.
- Links: **Certificate**

Reviewer

JOSS (Journal of Open Source Software)

SUMMER SCHOOL

Google AI Research Summer School

AUG 2020

- Among **150** students selected from all the institutes in India.
- Selected for the **AI4SG** track

Summer Symposium on AI Research

JUL 2020

- Organized a two day summer symposium on AI Research.
- Links: **Website**

SKILLS

Languages: Python, C++, C, C#, JAVA, JavaScript, MySQL

Frameworks: PyTorch, Tensorflow, Keras, ReactJS, NodeJS, ExpressJS

Technology: Git, AWS

VOLUNTEERING

Teacher - Abhigyaan(NGO)

Vice President - Society for Artificial Intelligence and Deep Learning(SAiDL)