

Ameya Dhamanaskar

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PUBLICATIONS

- **Ameya Dhamanaskar**, Mariella Dimiccoli, Enric Corona, Albert Pumarola and Francesc Moreno, "Self-supervising Egocentric Pose Estimation with Third Person Views" (In Review) **ICCV**, International Conference on Computer Vision, 2021

EXPERIENCE

Research Assistant, Institut de Robòtica i Informàtica industrial, IRI (UPC-CSIC) Barcelona, Spain
Perception and Manipulation Group, Guide: Prof. Francesc Moreno, Prof. Mariella Dimiccoli Oct 2019 - Ongoing

- Proposed a novel Self-supervising egocentric pose estimation with third person views, this approach improves the current state-of-the-art estimations by 12% & Created a multi-view synchronized Dataset for pose estimation.
- Extracted 3D joints from front view using Fast R-CNN to detect 2-D key-points, applied temporal CNN network to generate ground truth 3D poses from 2D keypoints.
- Regressed 3D body joints from ego-views, used auto-encoders (Resnet-152) to extract the static scene features and decoder RNN's (LSTM) with dense optical flow and homographic to extract dynamic motion features to predict poses on the egocentric images.
- Trained two stream Siamese Network with pseudo labels using contrastive loss to learn a latent embedding space from multiple views.

Tesco Technologies Bangalore, India
Software Development Engineer June 2018 - Sept 2019

- Built and programmed an architecture for autonomous Remote Rebuild of checkout counters in all Tesco stores across UK and Ireland.
- Implemented custom TFTP protocols, custom maps to store and retrieve records, integrated with web APIs and used socket programming to control the transfer of operating system images.
- Developed the code to create a quick and improved optimized vehicle routing system to find most efficient route between stores and warehouses for Store delivery.
- Used Bi-Dijkstra & Contraction Hierarchies along with heuristics & constraints to find optimized path between the nodes and Open street map to visualize the route.

Research Assistant, Central Electronics Engineering Research Institute (CSIR-CEERI) Pilani, India
Cognitive Computing Group, Guide: Dr. Sanjay Singh Jan 2018 - Apr 2018

- Implemented 3D CNN and shallow neural network, used feature engineering and fine-tuned hyperparameters for offline signature verification on low power devices on GPDS-160 dataset.
- Implemented a quantum neural networks along with Fuzzy c-means to initialize and update the weights. Trained the network to find an improvement of 5% in the accuracy.

Infirera Technology Bangalore, India
Software Engineering Intern July 2017 - Dec 2017

- Developed a recommender system to notify user about non-merged changes pending for auto merger.
- Developed plugin's to successfully migrate a large scale Database from Wiki to Confluence.

RELEVANT COURSES

Computer Science : Operating Systems, Object Oriented Programming, Microprocessor and Interfacing, Computer Programming, Digital Design.

MOOCs : Deep Learning Specialization (Stanford/Coursera), Machine learning(Stanford/Coursera), CNNs for Visual Recognition (Stanford YouTube Lectures), Intro. to Algorithms (MIT 6.006), Analysis and Design of Algorithms (MIT 6.046J), Computer Networks(Stanford/YouTube), Distributed Systems (MIT 6.824).

Mathematics : Linear Algebra, Calculus, Differential Equations, Optimization, Probability and Statistics.

RESEARCH PROJECTS

Object Detection system in Autonomous Driving car (Python, PyTorch)

- Implemented and reproduced the results of the paper "Faster R-CNN", "YOLOv3" & "SSD" by training these architectures over Drive.ai data to classify 60 objects.
- Replaced heuristic anchor box with feature selective Anchor free module to find more robust prediction of boxes
- Modified the non-max suppression with K-L loss, soft nms and var voting to boost the Average precision.

Art Generation using Neural Style Transfer with Network Compression (Python, OpenCV, TensorFlow)

- Implemented the Paper "A neural Algorithm of Artistic Style" while using VGG-19 network trained on Imagenet.
- Performed various structure, distribution and architecture based pruning strategies to generate sparse networks with upto 60% of compression and minimal degradation in model loss while speeding up the training of VGG-19.

Face Recognition System (Python, OpenCV, TensorFlow)

- Trained FaceNet model to minimize triplet loss and recognize authorized persons with 99.4% LFW accuracy.

Analysed sentiment analysis features on extracting ADR from tweets (Python, TensorFlow)

- Trained a deep learning BERT model to learn language representation on Adverse Drug Reaction data & also used a SVM classifier to retrieve ADR tweets.
- Analysed how using relevant sentiment features marginally increase the retrieval of ADR Tweets and posts.

ACADEMIC INTERESTS

Computer Vision and Deep Learning, Machine Learning, Reinforcement Learning, Artificial Intelligence, Robotics.

HACKATHON'S

- **Microsoft AI Challenge:** Developed a Machine Reading Comprehension System using **Bi-directional Attention Flow network** which given a user query and candidate passages corresponding to each, returns the most relevant passage which contains the answer to the query.
- **Tesco Technologies:** Developed a recommendation engine using **Deep auto-encoders** that provides enhanced suggestions of additional relevant products and recipes to cook based on food items in their cart.

TECHNICAL SKILLS

Languages	Python, C++, Matlab, Java, Groovy, SystemC, Perl, Shell.
Frameworks	PyTorch, Tensorflow, Caffe, Keras, OpenCV.
Hardware	Intel 808, Arduino, Raspberry-Pi.
Miscellaneous	Git, numpy, pandas, \LaTeX , pytest, OpenGL, pybind11, Flask, Docker, PySpark, Jira.

LEADERSHIP EXPERIENCE

Head Coordinator of the Department of Live Events Aug 2016 - May 2017

- Lead and Managed a team of 40+ members during BOSM (BITS Open Sports Meet), organized concerts and other live events for 5000+ students on Campus.

ACHIEVEMENTS

- Awarded **María de Maeztu grant** for research at **IRI, Barcelona**.
- Got recognized as most **Responsive** in Spotlight Awards for my **research** and **execution** at Tesco Technology.
- Secured **99.93%** All India Percentile in Joint Entrance Examination (Rank **1800** out of **1.2 Million**).
- Recipient of Inspire Scholarship (awarded to **top 1%** in Higher Secondary School Certificate).
- Secured **Rank 1** at High School Cambridge **IGCSE**.
- Got **100%** percentile in Cambridge **IGCSE** in Chemistry & Biology.