# Rochan Avlur Venkat

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## EDUCATION

**Mahindra Ècole Centrale** — Hyderabad, India
Bachelors of Technology in Computer Science & Engineering — *2017 - present*
GPA: 9.0/10

## PAPERS & PUBLICATIONS

(* denotes equal contribution)

*Training Convolutional Neural Networks with Differential Evolution using effective task apportioning on Hybrid CPU-GPU Architectures*
**Rochan Avlur Venkat**, Zakaria Oussalem, Arya Kumar Bhattacharya
*Under review*, IEEE International Conference on High Performance Computing, Data, and Analytics (HiPC), 2020

*Lossless Video Compression Using Bayesian Networks and Entropy Coding*
**Rochan Avlur Venkat**, Chandrasekar Vaidyanathan
IEEE Region 10 Symposium (TENSYMP), 2019

## PROFESSIONAL EXPERIENCE

- **Research Intern** — Center for Computational Visualization, University of Texas, Austin
  Mentor: Prof. Chandrajit Bajaj — *Jun. 2020 - present*

- **Summer Research Intern** — International Institute of Information Technology, Bangalore
  Mentor: Prof. Srinath Srinivasa — *May. 2019 - Jul. 2019*
  - Worked on a research project that involved generation and validation of coherent learning pathways for online resources
  - Contribution included developing and integrating multiple NLP language models, topic models and LSTM models in pathway generation pipeline. Also developed techniques for modelling semantic context and exposition coherence between learning resources in a learning pathway and validation methods.
  - Developed a language model to generate virtual documents called **topic2document** from topic distributions.

- **Summer Intern** — ShowUpHotels, Bangalore
  Mentor: Anupam Mediratta — *May. 2018 - Jul. 2018*
  - Conducted an in-depth study on NLP models, specifically topic models such as LDA, LSA, NMF & TFIDF etc. Also focused on models such as lda2vec, doc2vec and word2vec.
  - Developed and published a python package on PYPI called **sptm** (Sentence Prediction using Topic Modelling).

## SELECTED PROJECTS

- **Exploring feature extraction in Reinforcement Learning problems** — Mahindra Ècole Centrale
  Mentor: Prof. Achal Agarwal — *Jan. 2019 - Jan. 2020*

- **Video Compression Algorithm** — Bangalore
  Mentor: Chandrashekar Vaidhyanathan — *Aug. 2016 - May. 2017*

- **Distributed Compute Fabric using Mobile Devices**: Worked in a team to develop a platform to make computation on smartphones accessible and profitable. Aim was to tackle under-utilization of smartphones and large energy usage & pricing of datacenters. Contributions included designing and implementing efficient data and compute traffic distribution algorithms.

- **AI/ML for Cart Conversion**: Worked in a team to develop a multifaceted solution to solve the cart conversion problem faced by e-commerce companies. Proposed solution was built on themes of Visual Design, Social Value, Customer Design and Machine Learning. Contribution included developing a recommender system using Bayesian Networks and ensemble learning (Classification and Regression methods) for cart abandonment prediction.
- **DinoEnv Gym Environment**: Developed an OpenAI Gym environment for research in Reinforcement Learning algorithms based on the Google Chrome Dino game.
- **CineLog**: Developed an Intelligent and Adaptive Framework to enable Multiplexes predict opening day sales of a movie & optimize schedule to maximize profits both real-time and in near-future; designed and developed LSTM Networks, Sentiment Analysis and core RNN.
- **Harmonize**: Developed a Proof of Concept of a decentralized blockchain based Music Publishing & Sharing Platform; designed and developed core blockchain and back-end services.
- **oWatcher**: Developed a Discord bot to display detailed in-game performance statistics of a players in Overwatch by Blizzard Entertainment.

## TECHNICAL SKILLS

- **Languages**: Python, C, R, C++, Golang, Java
- **Libraries & Frameworks**: OpenCV, OpenAI Gym, Pytorch, TensorFlow, keras, sklearn
- **Platforms**: Nvidia DGX, AWS, GCP, Linux

## AWARDS & SERVICE

Finalist, Smart India Hackathon, 2020
Mahindra Ècole Centrale Academic Scholarship, 2018
President (Fmr. Vice-President), Mahindra Ècole Centrale Computer Science Club, 2019, 2018
Selected for Oral Presentation, Undergraduate Research Symposium, Mahindra Ècole Centrale, 2019
Finalist, Intel International Science and Engineering Fair (ISEF), 2017
Grand Award Winner & Finalist, Intel Initiative for Research and Innovation in Science (IRIS), 2016
Finalist, Intel Initiative for Research and Innovation in Science (IRIS), 2015, 2012
Most Innovative Solution, Open European Championship FIRST Lego League, 2014

## SEMINARS & WORKSHOPS

- **Generative Art Workshop** — Hyderabad
  Conducted an introductory session on Generative Art as a part of the Computer Sci. Club — *November 2018*

- **Photo-Realistic Rendering Workshop** — Hyderabad
  Conducted a session on Photo-Realistic Rendering as a part of the Computer Sci. Club — *November 2018*

- **Python Workshop** — Hyderabad
  Conducted a week long Python Workshop for Freshers — *Sept 2018*