Rochan Avlur Venkat

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Education

- **Mahindra Ecole Centrale** — Hyderabad, India
  Bachelor of Engineering in Computer Science; GPA: 3.56 (8.9/10.0) — *Aug. 2017 – July, 2019*
- **AECS Maaruti Magnolia Pre University College** — Bangalore, India
  High School; GPA: 3.20 (8.0/10.0) — *Jun. 2015 – March. 2017*

Scholastic Achievements

- **Computer Science Department, Freshman Year** — Hyderabad, India
  Academic Scholarship for top performing students — *May 2018*

Relevant Courses

- **Core Courses**:
  - **[Ongoing]** - *Operating Systems, Principles of Programming Languages, Database Management Systems & Microprocessors*
  - *Theory of Computation, Design and Analysis of Algorithms, Digital Logic & Design of Computer Architecture, Discrete Mathematics, Data Structures, C & Python Programming Language*
- **Mathematics**:
  - **[Ongoing]** - *PDE's and Numerical Methods*
  - *Numerical Methods, Probability, Random Processes & Statistics, Linear Algebra, Calculus*

Experience

- **Mahindra Ecole Centrale** — Hyderabad, India
  Junior — *Jan. 2019 - Current*
  - **[Ongoing] Deep Reinforcement Learning & Transfer Learning Research**: Working with Prof. Achal Agarwal a research project to construct compact and efficient feature representations for reinforcement learning problems. Worked with unsupervised image segmentation deep learning models and computer vision techniques. Conducted a survey on improving interpretability and transferability of RL algorithms.
    - *Language: Python*
    - *Libraries: sklearn, OpenCV, PyTorch*
  - **AI/ML for Cart Conversion - Dell Hack2Hire**: 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. My contribution included developing a recommender system using Bayesian Networks and ensemble learning (Classification and Regression methods) for cart abandonment prediction.
    - *Language: Python*
    - *Libraries: sklearn*
- **Mahindra Ecole Centrale** — Hyderabad, India
  Sophomore — *Aug. 2018 - Jul. 2019*
  - **Summer Research Intern - Web Science Lab, Center for Data Science, International Institute of Information Technology, Bangalore (IIIT-B)**: Worked on a research project that involved generation and validation of coherent learning pathways for online resources under the guidance of Prof. Srinath Srinivasa. My contribution included developing and integrating multiple NLP language models, topic models and LSTM models. Worked on developing and validating methods for modeling semantic context and exposition coherence between learning resources in a learning pathway. Developed a language model to generate virtual documents called topic2document (Available on GitHub) from topic distributions.
    - *Language: Python*

    - *Libraries: sklearn, gensim, tensorflow, keras, spacy, nltk*
  - **DinoEnv**: Developed an OpenAI Gym environment for the Google Chrome Dino game (Available on GitHub).
    - *Language: Python*
    - *Libraries: pygame, gym*

- **Mahindra Ecole Centrale** Hyderabad, India
  Freshman *Aug. 2017 - May, 2018*
  - **Summer Intern**: Conducted an in-depth study on NLP models, specifically topic models such as LDA, LSA, NMF & TFIDF etc. Also focused on vector models such as lda2vec, doc2vec and word2vec. Developed and published a python package on PYPI called sptm (Sentence Prediction using Topic Modelling). Available on GitHub.
    - *Language: Python*
    - *Libraries: sklearn, gensim, MALLET, tensorflow, spacy, nltk*
  - **CineLog - Team(2)**: Developing 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
    - *Language: Python, golang*
    - *Libraries: Tensorflow, Pandas, numpy, matplotlib, sklearn, lstmpredictor, imdbpie, googleapiclient, request, python-twitter*
  - **Harmonize - Team(3)**: Developed a Proof of Concept of a decentralized blockchain based Music Publishing & Sharing Platform; designed and developed core blockchain and back-end services
    - *Language: golang*
    - *Libraries: aws-sdk-go, websocket*
  - **oWatcher - Individual**: Developed a Discord bot to display detailed in-game performance statistics of a players in Overwatch by Blizzard Entertainment. Available on GitHub.
    - *Language: NodeJS*
    - *Libraries: discord.io, winston, OWAPI*

- **AECS Maaruti Magnolia Pre University College** Bangalore, India
  High School Student *Jun. 2015 - March. 2017*
  - **Research in Video Compression Algorithms - Team(2)**: Worked alongside Prof. Chandrashekar Vaidhyanathan, Contributions included to algorithm design, implementation and testing; Involved a lossless compression scheme that can be extended to both Near-Lossless and Lossy compression
    - *Language: C, R, Python*
    - *Libraries: ffmpeg, Libtiff, bnlearn, gRain*

- **Delhi Public School - East** Bangalore, India
  Middle School Student *Jun. 2013 - March. 2015*
  - **A Sensor Based System to effectively track Geriatric Care and Dementia patients**: Was responsible in developing the full stack solution, including micro-controller programming, Android application development and back-end services
    - *Languages: Python, Java, Processing, MySQL*
    - *Libraries: NA*

Awards & Achievements

- **2019 - Dell Hack2Hire Hackathon, Hyderabad, India - *First Place***: Proposed a multifaceted solution to the cart abandonment problem faced by e-commerce companies.
- **2018 - Pragyan Hackathon, Bangalore, India - *Special Mention***: Showcased an Adaptive Movie Scheduling Framework for Multiplexes using RNN's, LSTM, Sentiment Analysis and Machine Learning
- **2017 - Brave Hackathon, Hyderabad, India - *First Place***: Showcased a Decentralized Music Publishing and Sharing Platform built over 24 Hours
- **2017 - Intel International Science and Engineering Fair (ISEF), Los Angeles, United States - *Finalist***: Showcased a research project titled - A Lossless Video Compression Technique Using Bayesian Networks and Entropy Coding

- **2017 - Intel Initiative for Research and Innovation in Science (IRIS), Pune, India - *Grand Award Winner, Finalist***: Showcased a research project titled - A Lossless Video Compression Technique Using Bayesian Networks and Entropy Coding
- **2015 - Intel Initiative for Research and Innovation in Science (IRIS), Bangalore, India - *Finalist***: Showcased a research project on am Efficient Thermoelectric Refrigeration System
- **2014 - Open European Championship FIRST Lego League, Mannheim, Germany - *Most Innovative Solution***: Showcased a research project on the Utilization of T2 Bacteriophages to fight Food Contamination
- **2013 - FIRST Lego League (FLL), Regionals, Bangalore, India - *Best Robot Design***: Showcased a robot design that was highly efficient while still remaining simplistic
- **2012 - Intel Initiative for Research and Innovation in Science (IRIS), Chandigarh, India - *Finalist***: Showcased a solar cooker design that was inspired from the Parabolic and Box type designs

Technical Skills

- **Languages**: Python, C, R, C++, Golang
- **Libraries & Frameworks**: libtiff, ffmpeg, ImageMagik, gensim, MALLET, OpenAI Gym, Pytorch, TensorFlow, sklearn
- **Platforms**: Nvidia DGX, AWS, GCP, Linux, Raspberry Pi, Arduino

Positions of Responsibility

- **President** — Hyderabad, India
  Enigma, The Computer Science Club at Mahindra Ecole Centrale — *May 2019*
- **Student Member** — Intl.
  ACM & IEEE Student Member — *Since 2018*
- **Member** — Intl.
  Sigma Xi Member — *Since 2017*

Conferences, Seminars & Workshops

- **Undergraduate Research Symposium (URS)** — Hyderabad, India
  Presented research work carried out at IIIT-B during Summer Research Internship — *Sept 2019*
- **IEEE Region 10 Symposium (IEEE TENSYMP)** — Kolkata, India
  Presented paper, IEEEXplore Digital Library: ISBN: 978-1-7281-0297-9 — *May 2019*
- **International Conference on Machine Learning and Data Science** — Hyderabad, India
  Attended two day conference held at Mahindra Ecole Centrale — *Dec 2018*
- **MECHacks Hackathon** — Hyderabad, India
  Organized a 36 hour Hackathon as a part of Aether, the annual fest at Mahindra Ecole Centrale — *November 2018*
- **Generative Art Workshop** — Hyderabad, India
  Conducted an introductory session on Generative Art as a part of the Computer Sci. Club — *November 2018*
- **Photo-Realistic Rendering Workshop** — Hyderabad, India
  Conducted a session on Photo-Realistic Rendering as a part of the Computer Sci. Club — *November 2018*
- **Mozilla Hackathon** — Hyderabad, India
  Organized a 36 hour Hackathon — *October 2018*
- **Python Workshop** — Hyderabad, India
  Conducted a Python Workshop for fresher (First Year) as part of the Computer Sci. Club — *September 2018*

Extra-Curricular Activities

- **Football** Hyderabad, India
  - **2019 - Current**: Member of the Mahindra Ecole Centrale College Football A Team, represent the college at Inter-College Meets
- **Swimming** Bangalore & Hyderabad, India
  - **2017 - Current**: Member of the Mahindra Ecole Centrale College Swimming Team, represent the college at Inter-College Meets
  - **2015**: Participated in the FINIS State level Sub Junior/Junior Championship event – Freestyle, Butterfly & Individual Medley events
  - **2012-15**: Represented Delhi Public School Bangalore East School Swim Team in a number of inter-school swimming competitions. Secured additional credits in CBSE Board
- **Running** Bangalore, India
  - **2015**: 1st Place in the 5 km 'Spirit of Wipro' marathon run (Open non-employee category); Timing: 21 mins
- **Music** Bangalore, India
  - **2005-10**: Learnt playing Tabla (Indian percussion instrument). Cleared the Aadhya, Madya, Purna, 1st year and 2nd year exams conducted by 'Bangiya Sangeet Parishad', Rabindra Bharati University, Kolkata