

EDUCATION	<b>Northwestern University</b> Master of Science in Computer Science, <b>GPA: 4.0/4.0</b> <b>Coursework:</b> Machine Learning, Statistics, Deep Learning Foundations, Advanced Deep Learning, Data Science Seminar, Statistical Language Modeling, Algorithms, Social Network Analytics <b>Labs/Groups:</b> REALM Lab, MAGICS Lab, AI Journal Club	Evanston, Illinois <i>Sep 2019 – Present</i>
	<b>K.J Somaiya College of Engineering</b> Bachelor of Technology in Computer Engineering, <b>GPA: 8.99/10</b> <b>Coursework:</b> Machine Learning (Topper), Neural Nets, Image Analysis (Topper), AI, Data Structures, Algorithms, Operating System (Topper)	Mumbai, India <i>Aug 2015 – May 2019</i>
	<b>Certifications</b> Deep Learning Specialization (Deeplearning.AI), Machine Learning (Stanford, Coursera)	
WORK EXPERIENCE	<b>CIERA</b> <b>Researcher   Prof. Vicky Kalogera's Group</b>	Evanston, Illinois <i>Jun 2020 – Present</i>
	<b>Earthquake Detective   Prof. Suzan Van Der Lee</b> <ul style="list-style-type: none"><li>• Compiled and processed the first ever comprehensive ML benchmark dataset of potentially triggered earthquakes and tremors with 130k+ samples.</li><li>• Developed a ML model which uses Wavelet Scattering and Image Convolutions to detect low amplitude earthquake and tremor signals with 90.4% accuracy.</li><li>• Developing a ML based retirement algorithm to effectively retire labeled seismic samples on Earthquake Detective - a crowdsourcing platform.</li></ul>	
	<b>Northwestern University</b> <b>Graduate Research Assistant   Prof. Prem Seetharaman</b>	Evanston, Illinois <i>Jan 2020 – Jun 2020</i>
	<ul style="list-style-type: none"><li>• Developed Otoworld, an interactive environment for training Reinforcement Learning agents for Computer Audition.</li><li>• Agents are rewarded for "turning-off" sources which are spawned in the environment.</li><li>• Agents trained in this environment implicitly learn to separate the sources by learning to maximize the reward.</li><li>• Developed a RL agent with a Monaural Separation Model, Spatial Feature Extractor and a Q-Network to navigate this environment.</li></ul>	
	<b>K.J Somaiya College of Engineering</b> <b>Research Intern   Prof. Grishma Sharma</b>	Mumbai, India <i>Jan 2018 – Apr 2018</i>
	<ul style="list-style-type: none"><li>• Researched k-shot learning methodologies and developed a facial recognition system which can be trained on limited data. (k=number of training samples per class).</li><li>• The system gives 100% accuracy for k=3 and subjects less than 20. For 20-30 subjects and k=3, accuracy ranges from 80 to 90%.</li></ul>	
	<b>Accelo Innovation</b> <b>Machine Learning Intern</b>	Mumbai, India <i>Aug 2017 – Oct 2017</i>
	<ul style="list-style-type: none"><li>• Implemented depth mapping module using Stereo Vision and achieved a 98% accuracy (2 cm error) for objects up to 5m away. Objects 20m away were estimated with 95% accuracy.</li><li>• Implemented object detection module with a combination of Haar Cascades, Histogram of Gradients and a CNN model.</li><li>• Implemented lane detection module using Inverse Perspective Mapping.</li></ul>	

SKILLS	<b>Languages/Web:</b> Python, Java, R, C, C++, HTML, CSS, PHP, Javascript, AngularJS, Node.js <b>Analytics/Tools:</b> PostgreSQL, MySQL, AWS, Git, Docker, Spark, Tableau, Trifacta, Matplotlib, D3.js <b>Libraries:</b> Pytorch, Tensorflow, OpenCV, OpenAI-Gym, Numpy, Pandas, Scikit-Learn, NLTK, Keras	
PUBLICATIONS	1. <b>O. Ranadive</b> , S. van der Lee, T. Vivian, and C. Kevin, "Applying machine learning to crowd-sourced data from earthquake detective," in <i>AI for Earth Sciences Workshop, Thirty-fourth Conference on Neural Information Processing Systems (NeurIPS'20)</i> , Dec. 2020. 2. <b>O. Ranadive</b> , G. Gasser, D. Terpay, and P. Seetharaman, "Otoworld: Towards learning to separate by learning to move," in <i>Self Supervision in Audio and Speech Workshop, 37th International Conference on Machine Learning, Vienna, Austria (ICML'20)</i> , Jul. 2020. 3. K. Joisher, S. Khan, and <b>O. Ranadive</b> , "Simulation environment for development and testing of autonomous learning agents," in <i>2nd International Conference on Advances in Science &amp; Technology (ICAST'19, Elsevier SSRN)</i> , Apr. 2019. 4. <b>O. Ranadive</b> and D. Thakkar, "K-shot learning for face recognition," <i>International Journal of Computer Applications</i> 181 (18), pp. 43–48, Sep. 2018.	
PROJECTS	<b>Reinforcement Learning for High-Frequency Trading</b> <ul style="list-style-type: none"> <li>Developed an environment to process HFT data and maintain a limit-order book in real-time.</li> <li>Developing RL agents to leverage the level-2 data to take intelligent trading decisions.</li> </ul> <b>LinkedIn Network Analytics</b> <ul style="list-style-type: none"> <li>Analyzed how LinkedIn network has changed in the post-COVID era and identified key users using centrality measures and sentiment analysis.</li> <li>Analyzed emergence and changes in communities using k-core decomposition and cluster decomposition algorithms.</li> <li>Used SIENA and STERGM models to fit the network and validate hypotheses.</li> </ul> <b>Analyzing spread of COVID-19 using Graph Neural Networks</b> <ul style="list-style-type: none"> <li>Developed an end-to-end pipeline to process COVID-19 data into graph structures and analyze it.</li> <li>Predicted future spread in US states using Graph Convolution Network and Message Passing Network based on census data, time series info, travel data and distances between US states.</li> </ul> <b>Domain Adaptation using CycleGAN</b> <ul style="list-style-type: none"> <li>Developed a CycleGAN architecture to map simulated images to real-world images to reduce the domain gap between real-world data and virtual environment data.</li> <li>Developed a multi-iterative CycleGAN architecture to enhance the GAN output.</li> </ul> <b>Citizens Police Data Project</b> <ul style="list-style-type: none"> <li>Analyzed crime trends, officers, and incidents using SQL, Tableau and D3.JS.</li> <li>Created a co-accusal network of officers and used graph analytics to identify key officers.</li> <li>Applied NLP on reports to find important keywords and assign severity scores.</li> </ul>	
TALKS	<ul style="list-style-type: none"> <li>MuZero: Learning to plan in unknown environments, AI Journal Club</li> <li>Earthquake Detection using crowd-sourced data, Data Skeptic Podcast</li> <li>AI for Earth Sciences Workshop, NeurIPS 2020</li> <li>Agent57: Surpassing human performance on Atari Games, AI Journal Club</li> <li>Self-Supervision in Audio and Speech Workshop, ICML 2020</li> <li>Imagination and Curiosity in Reinforcement Learning, AI Journal Club</li> <li>Multi-Agent Reinforcement Learning, AI Journal Club</li> </ul>	Feb 2021 Dec 2020 Dec 2020 Oct 2020 Jul 2020 May 2020 Feb 2020
TEACHING	<ul style="list-style-type: none"> <li>Advanced Deep Learning, Graduate Student Instructor, Northwestern University</li> <li>Statistical Machine Learning, Graduate Student Instructor, Northwestern University</li> <li>Machine Learning Workshop, CSI, K.J Somaiya College of Engineering</li> <li>Cryptography Workshop, CSI, K.J Somaiya College of Engineering</li> </ul>	2021 2021 2016 2016
AWARDS & ACTIVITIES	<ul style="list-style-type: none"> <li>Undergraduate Final Year, <b>Rank 2</b></li> <li>Winner of <b>IEEE</b> Technical Paper Presentation for the paper "Framework for low cost driver-assistance system".</li> <li>Council Member of <b>Computer Society of India</b>.</li> </ul>	2019 2017 2016-2017