

MANSI RANJIT MANE

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Education	Carnegie Mellon University Master of Science in Electrical and Computer Engineering <i>Courses:</i> Computer Vision, Visual Learning & Recognition, Deep Learning, Machine Learning, Practical Data Science, Statistical Inference	<i>Jan'17-May'18</i> <i>GPA: 3.8/4.0</i>
	College of Engineering, Pune (CoEP), India Bachelor of Technology in Electronics & Telecommunications Engineering	<i>Jul'11-Jun'14</i> <i>GPA: 8.04/10</i>
Experience	Applied Scientist II, AWS, Amazon, Santa Clara (CA) <ul style="list-style-type: none">• Trained billion scale parameter NLP model from scratch with minimal loss in accuracy. To enable customers to train such models seamlessly on AWS, worked on SageMaker Model Parallel and HuggingFace integration which is being used by 30% of distributed training customers.• Researched different batch size scaling algorithms which reduced training time by 3 times for ResNet training.• Worked on making PyTorch available in deep learning containers which is being used by 10000 users per week.• Built deep learning infrastructure using the following AWS services: S3, EC2, ECR, SageMaker, CloudFormation, CloudWatch, CodeBuild, IAM.	<i>Aug'20-Present</i>
	Data Scientist, Personalization team, Walmart Labs, Sunnyvale (CA) <ul style="list-style-type: none">• Built machine learning models and data pipelines in Hive & PySpark for large scale item recommendations with 20 million items.• Deployed matrix factorization model for personalized item recommendations for 10M users which resulted in 0.08% gain in add to cart rate in online A/B test.• Developed siamese networks model for complementary item recommendations with in 0.1% gain in click through rate in online A/B test.• Developed machine translation model to generate product titles for 20,000 items sold with voice assistants.	<i>July'18-July20</i>
	Research Internship, CyLab Biometrics Center, CMU <ul style="list-style-type: none">• Trained deep residual network for face parsing using fully convolutional instance aware semantic segmentation.• Synthesized 2D face images at different poses to project 3D fitted morphable model for face into 2D.	<i>May'17-Aug'17</i>
	Design Engineer, Silabtech (now part of Synopsis), Bangalore <ul style="list-style-type: none">• Developed RTL for 5Gbps USB3 SERDES Phy consisting of transmitter, receiver & PLL on 28nm.	<i>Nov'14-Sept'16</i>
Publications	Mansi Mane et. al. "Accelerating Deep Learning Training - A Survey of Batch Size Scaling Methods" Under submission, Amazon Internal Conference 2022 Mansi Mane et. al. "Complementary-Similarity Learning using Quadruplet Network" Workshop on Recommender Systems in Fashion, ACM Recommender Systems (RecSys) 2019 Mansi Mane et. al. "Deep Learning based Head and Tail Localization of C. elegans." Workshop on Computational Biology, International Conference on Machine Learning (ICML) 2019	
Major Projects	Zero Shot Learning for Image Classification, CMU <i>[Code]</i> <i>[Report]</i> <ul style="list-style-type: none">• Proposed novel approach for mapping images into word embedding space. Analyzed marginalized probability, class specific Euclidean distance threshold methods to determine image as seen or unseen with overall accuracy of 64.43% (9.99% gain over baseline) on CIFAR-10 data set.	<i>Sept'17-Dec'17</i>
	Weakly Supervised Object Detection and Localization, CMU <i>[Code]</i> <ul style="list-style-type: none">• Implemented two approaches for detection and localization using Alexnet in PyTorch.• Trained network without ground truth bounding box data and achieved 0.17mAP on PASCAL VOC dataset.	<i>Mar'18-Apr'18</i>
	Fast Super-Resolution CNN (FSRCNN), CMU <ul style="list-style-type: none">• Implemented super-resolution CNN (SRCNN) and FSRCNN using Keras. Achieved Peak Signal to Noise Ratio of 31.97 for SRCNN versus 32.29 for FSRCNN using 3 times less number of parameters than SRCNN.	<i>Nov'17-Dec'17</i>
Skills	<i>Programming Languages</i> Python, C, Java, Matlab, Verilog, LaTeX <i>Tools</i> AWS, TensorFlow, PyTorch, Keras, Hive, PySpark, SQL, Pandas, Nsight Systems	
Honors	<ul style="list-style-type: none">• Best Innovative Design award at national robotics competition 'Robocon 2013'• Secured 4th rank among 46742 students in Maharashtra State for Industrial Electronics diploma.	<i>Mar'13</i> <i>Jul'11</i>