Aman Rusia

ML and NLP Engineer
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Education

2017	Mtech Mech Eng.	IIT Kanpur	9.3/10
2017	Btech Mech Eng.	IIT Kanpur	8.3/10
2012	XII	CBSE	88.8%
2010	X	CBSE	9.6/10

Skills

Machine Learning

Pytorch. Tensorflow. Keras. Transformers. Document AI. Object detection. NER. Conversational AI. ASR. QnA. Information retrieval.

Programming

Python, Golang, Javascript, C, C++ SQL, Rest API, type theory, OOP

MLOPs, Devops

Docker, Kubernetes, Jenkins, CI/CD tools, terraform, postgres, cassandra, linux, gdb, aws and gcp services

Other highlights

- Managed a team of 4 at Nanonets. One-on-ones, sprint planning, hiring
- Whirlpool internship 2015 - top 5 project for mechanism design
- AIR 849 in IIT-JEE 2012 and AIR 458 in AIEEE 2012 among a million students
- KVPY 2011-12 scholorship - selected
- Took initiate for several internal automation projects and built them successfully to be used by others.
- Kaggle competition APTOS blidness detection 2019, rank 259
- FAST-AI part 1 course in 2017
- >2 years of experience in technical mentoring junior folks

Experience

Four Years Nine months work experience in ML

Feb '20 - Nov '22	**Nanonets (YC 17)**	Lead DL Engineer
Mar '18 - Feb '20	**Suprath Tech.**	ML Engineer

Achievements

- Developed the flagship invoice model in use by >50% of the Nanonets customers, primarily due to better accuracy over others.
- Received accolades from Nanonets CTO on high coding standards
- Built the table extraction technology solving customer problems in a way not solved by any other competitor on complex cases
- Solved problems unseen in literature (e.g., hierarchical key-value)

Projects

Complex Table extraction ***Nanonets '21-'22***

- Transformer based model with novel changes for document understanding. Adapter finetuning. Multi-task pretraining. Rotary embeddings. Dynamic batch size. Warp augmentation.
- Kubernetes, docker, ray-serve, gunicorn+flask, prometheus, jenkins used for deployment in production. In use by >30 customers.

Fields extraction for invoices, receipts, etc. ***Nanonets '20-'22***

- Better accuracy than the competitors on receipts and invoices.
- Pretraining bert type architecture for MLM task on documents.
- Graph-crf and linear chain crf using pystruct for better accuracy

Hierarchical Key Value Extraction ***Nanonets '21***

- Solved the abstract problem of detecting graph in graph. Novel ML problem unseen in literature. The model is able to create arbitrary deep tree by detecting the hierachical relationships

Hindi-English Translation System ***Self '20***

- Developed transformer-xl encoder-decoder based en-hi and hi-en translation system. Trained on GRCP google sponsored TPU-v3

XLNet-Gen (169 github stars ⭐) ***Self '19***

- First in ML community to adapt XLNet for text generation using tensorflow. https://github.com/rusiaaman/XLnet-gen 169 stars

Coversational AI for agent assist ***Suprath '18-'19***

- Goal oriented conversational AI using Rasa framework.
- Built novel dialogue tracker for 3-way state tracking

ETL on AWS ***Suprath '19***

- Designed and developed AWS stack using terraform.
- Developed automated ETL pipeline using Python and Apache Airflow. Used AWS transcribe, RDS, VPC, EC2, S3, Route53, Boto3.

ASR (Speech to Text) ***Suprath '19-20***

- Finetuned Jasper architecture using Nvidia openseq2seq.
- Developed annotation tool. Deployed model using docker-swarm.

Academic Courses and Research Papers

- Probabilistic Graphical Models 3 course specialization 98.2% avg
- Machine Learning Andrew NG with 100% grade
- ASCHT 2017 and FMFP 2016 conference papers on MPI based distributed training on HPC for numerical heat transfer simulation