

Rohit Shah

Data scientist / Machine learning engineer

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Mumbai

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PROFILE SUMMARY

- Assistant manager at CitiusTech's Data science team with 8+ years of experience.
- Lead projects that provided total saving of \$1 million for leading claim negotiation customer.
- Pivotal role in development of clinical NLP product which extracts clinical entity from Medical notes.
- Proficient in design & development
 - **Ideation**- Adept at translating business problem into technology problem, project planning, rapid prototyping
 - **Software development** - Architecture design & hands-on experience in machine learning with different set of problems like Classification, Regression, Natural language processing (NLP), Time Series, Image
 - **Machine learning operationalization** - Drift detection, experiment tracking, CI/CD
 - Skilled at all major cloud services like GCP, AWS, Azure & Databricks
- 271st person in the world to clear GCP machine learning engineer certification & helping 7 others to prepare.

TECHNICAL SKILLS

Environments	Windows, Linux, Cloud (GCP, AWS, Azure, Data bricks), Oracle Retail & SCM, Oracle DB, Git, GitHub
Languages	Python, SQL, PL/SQL, Core Java, Unix, PySpark
Domains	Healthcare, Supply chain management
ML & DL Models	Deep neural network (DNN), convolution neural network (CNN), recurrent neural network (RNN), BERT, Random forest, XG boost, KNN, SVC
Libraries	<ul style="list-style-type: none">- TensorFlow, Keras, pytorch, Scikit learn, Pandas, NumPy- Tensor Board, Matplotlib, Seaborn, Orange, google facets- LIME, SHAP, Eli5, what-if tool- NLTK, Genism, Spacy, sci-spacy, hugging face- mlflow, TFX, Hyperopts, fb prophet, wandb

Professional Experience

- **Network Provider matching:**
 - 6 million claims per year requires manual matching which cost around \$1 million.
 - Developed random forest model which automates 60% of no match claim with ~1.7% of error rate which is less than human error rate of ~4% reported by business.
 - Same model is used as recommendation system for matched claims with 90% accuracy in top 5 recommendation.
- **Clinical NLP accelerator:**
 - The product is based on machine learning and NLP helped to abstract data locked in structure/unstructured notes (Medical records/Charts).
 - Model processes clinical notes in less than 1 sec to extract multiple entities with attributes with F1 score of 82%.
- **Medical code matching:**

- Improved code set mapping efficiency (400%) from 15 concepts/hr to 60 concepts/hr through recommendation system for client specialized in medical vocabulary.
- Two ML model (KNN) was developed for problem (95% accuracy in top 5 recommendation) and procedures (92% accuracy in top 5 recommendation), Features was created using Clinical BERT.
- **Claims Denial Management:**
 - XGboost model was developed with 95% precision to predict claims denied due to medical necessity prior to submission to payers.
 - Dataset was highly imbalance where only 0.05% of data belongs to positive class.
- **Machine learning model monitoring Framework:**
 - Managed 4-member cross functional team to create model monitoring framework for HIMSS to monitor evaluation metrics, business outcome, drift detection, model explanation & Infrastructure monitoring.
- **CPT & ICD code embeddings:**
 - Created embeddings (word2vec & Poincare) for CPT/ICD codes which is used in 4 different projects.

Rapid prototyping for customers

- **DICOM de-identification using GCP:** workflow was created for customer to de-identify DICOM files & integrate with PAC system.
- **FHIR integration with NLP:** Lead team of 6 overseeing integrate FHIR with NLP which will help client to analyze unstructured information present (ICD/SNOMED code) in FHIR entity type document reference (Clinical notes).
- **Extract ontology from clinical phrases:** Trained NER model to extract lower level entities like Severity, body structure, Side, Substance, findings, diagnosis, procedure, observation from clinical phrase with F1 score of 92%.

Machine learning competition & open source contribution

- Predicting probability of success of new grocery store (1st price)
- CitiusTech Hackathon- Decentralized AI (1st price)
- Capgemini Tech Challenge (3rd position)
- Predicting promotional probabilities (Top 3%)
- Raised an issue with sci-kit learn for SVC model with degree three which is accepted as bug
- Reported issue for what-if tool (developed by google brain team) which was accepted as bug
- For more [projects & hackathon](#)

Course undertaken

- GCP machine learning engineer, Year 2021
- GCP Data engineer (Coursera & Linux Academy), Year 2020
- Scalable machine learning on Big data using Apache Spark (Coursera), Year 2020
- Data camp certificated Data scientist, Year 2016
- Oracle SQL & PL/SQL developer, Year 2014
- DEV288x: Natural language processing by Microsoft (Advance NLP)

Work History

Employer	Title	Dates of employment
CitiusTech	Assistant manager of Data science	May 2019 – till date
Deloitte USI, Mumbai, India	Consultant (Oracle ERP & ML developer)	Feb 2017 - May 2019
Tata Consultancy services	Oracle Apps Developer	Mar 2013 – Feb 2017

EDUCATION

Bachelor of Engineering from Mumbai University in the year 2012, India.