

Ashish RANA

Data Engineering Specialist, GE Healthcare

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PROFESSION EXPERIENCE

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| Present August 2019 | Data Engineering Specialist Data and Analytics Team, GE HEALTHCARE, Bengaluru <ul style="list-style-type: none">Designed & developed incremental log data analysis pipeline with AWS Glue jobs, PySpark data transformations with Zeppelin & Elasticsearch datastore.Designed & developed ingestion and predictive outlier detection pipeline MR modality from multiple sensor data sources.Worked on Weibull Regression for hazard estimation in R for modality failure rate prediction assisting predictive maintenance.Designed, developed and deployed terabyte scale ingestion procedures in PL/pgSQL on AWS Redshift multiple modalities and across all regions.Two times Impact Award & one time Collaboration award recipient. Second runner-ups in football & volleyball in all GE businesses. <div>Python R PL/pgSQL AWS Redshift Elasticsearch Other AWS Services</div> |
| June 2019 January 2019 | Data Engineering Intern Next Gen Data Management Team, AMERICAN EXPRESS, Bengaluru <ul style="list-style-type: none">Developed Prometheus and Grafana based monitoring and alerting orchestrated tool from scratch for monitoring 1000+ Couchbase database VMs.Designed, developed and deployed Couchbase VM metrics. Also, developed parallel VM patching script that reduces downtime by 4 times.Benchmarked performance of Redis and RedisGraph databases with the existing stack. Also, received certification in Redis basics and RediSearch.As extra initiative, developed Confluence page scrapper with ReST queries for content summarization.Planned and organized intern outings, birthdays & farewells during the internship. <div>Couchbase Python Grafana Redis Prometheus ReST</div> |
| July 2018 Jun 2018 | Software Engineering Intern Product Lifecycle Management Team, GE DIGITAL, Bengaluru <ul style="list-style-type: none">Added SAML re-authentication module in custom Enovia PLM code base as per FDA CRF 21 guidelines.Implemented ReST based architecture from the existing SOAP legacy code.Conducted and presented in-depth case study of open-source static analysis tools on Enovia Java codebase. Also, proposed centralized custom rule creation based solution with SonarLint and SonarQube tools. <div>ReST Static Code Analysis Tools SAML Java JSPs</div> |

SELECTED PROJECTS

CLUSTERING BASED RECOMMENDATION SYSTEM

[Github Repository](#) [Medium Article](#)

Designed & developed on course data from Pluralsight a k-means clustering and LDA based recommendation system that uses elbow method for finding approximate number of clusters to minimize SSE.

K-means LDA sklearn numpy

PREDICTIVE ANALYTICS ON HIGHLY SKEWED DATA

[Github Repository](#)

Developed feature engineering & importance pipeline for baseline models on highly skewed datasets which beats traditional ensemble models.

EDA Cross Validation Machine Learning

SMART PDF OCR DENOISER

[Github Repository](#)

Multi-processing based design with recursive Levenshtein spell checker, numerical error remover and currency symbol handler, extendable design for further improvements.

Python Multi-Processing Word correction


EDUCATION

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| CGPA: 9.51 | BE, Computer Eng., Thapar Institute of Engineering and Technology, Punjab, India (2015-2019) |
| Study Year Gap | Taken for multiple competitive exam preparation (2014-2015) |
| %cent: 91% | 12 th , Army Public School, Meerut Cantt., UP, India (2013-2014) |
| GPA: 9.80 | 10 th , Army Public School, Jalandhar Cantt., Punjab, India (2011-2012) |

RESEARCH WORK AND PRESENTATIONS

BUILDING SAFER AUTONOMOUS AGENTS BY LEVERAGING RISKY DRIVING BEHAVIOR KNOWLEDGE

Under Review

 [arXiv: 2103.10245](#)

First author, Improved agent performance with utilization of collision scenario information & causally identified the intervention's impact.

Model Free Deep Reinforcement Learning Stochastic Control Causal Experimentation

AUTOMATING COUCHBASE MONITORING INTEGRATIONS WITH PROMETHEUS & GRAFANA

Couchbase Connect.ONLINE 2020

 [Session Link, Login required](#)  [Github Repository](#)

Presentor, Orchestrating multi-tool setup involving Prometheus, Couchbase-Exporter & Grafana for Couchbase DB monitoring with ReST HTTP servers. Also, making the architectures highly available & raising predictive alerts to reduce application downtime.

ReST Couchbase Forecasting & Outlier Detection

EXPLORING NUMERICAL CALCULATIONS WITH CALCNET

ICTAI 2019

 [IEEE Portal Link](#)  [Github Repository](#)

First author, Proposing a neural network architecture that parses & estimates mathematical expressions with NALU & NALU layers.

NALU MLP Numerical Analysis

SYSTEMATICALLY DESIGNING BETTER INSTANCE COUNTING MODELS ON CELL IMAGES WITH NALU

Under Review

 [arXiv: 2004.06674](#)  [Github Repository](#)

First author, Improved accuracy on cell counting dataset with NALU based residual connections in FCRN & U-net architectures.

FCRN U-net Residual connections NALU

DEVELOPER ACHIEVEMENTS

LIVEPROJECT: REINFORCEMENT LEARNING FOR SELF-DRIVING VEHICLES

UNDER BETA TESTING

 [Github Repository](#)

Developed agent prototyping hands-on practice project for Manning Publications in research *highway-env* and made contributions to three related packages.

Stochastic Control Policy Gradient Methods Actor Critic Methods

MEDIUM BLOGGING

 [Medium Blog](#)  [Hackernoon Story](#)

Published articles on DL, ML, AI and Reinforcement learning with 70K+ reads and 475+ unique recommendations for publications like Hackernoon, TowardsDataScience & AnalyticsVidhya. Also, published the highest rated top weekly story on Hackernoon.

Database Monitoring Machine Learning Deep Learning Data Analysis

COLLEGE EXTRA CURRICULARS

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| Voluntary Experience | Destitute home & Orphanage visits, Blood donor & Charity participation. |
| OWASP Chapter Design Head | Produced professional designs with Adobe Photoshop suite. |
| MARS(Robotics Society), Core Team | Maze-solvers Arduino & advanced C++ workshops conducted. |
| Scimatics(Science Society) Mentor, Design Head | Java, C++, Arduino, graphic design workshops conducted. |
| Academics Gold Medalist | Social Network (NPTEL-Course), First Year (Branch), High School IMO (SOF) |

REFERENCES

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