Kuldeep Singh Rathor

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Education

Master of Science, Computer Science Arizona State University **3.8/4.0** August'20
Relevant Courses - Data Mining, Distributed Databases System, Artificial Intelligence, Foundation of Algorithms.

Bachelor of Technology, Computer Science Gurukula Kangri University August'08 - June'12

Work Experience

AppFormix, Juniper Networks | Software Engineering Intern Sunnyvale, USA | May'19 – Aug'19

- Implemented Message standardization of alarms for Kafka and Notification Endpoints in AppFormix Cloud monitoring tool and thus saved overhead of parsing of different message structures to these endpoints.
- Ensured scalability of implemented system by performing scalability testing using system tests.
- Used Python, Docker, Swagger and Kafka and shipped my code as part of Release 3.1.1 in August'19.

Data Science Lab, ASU | Research Associate Tempe, USA | Oct'18 –Aug'20

- Developed a solution for creating Intelligent Teams based on similar expertise and skillset of experts utilizing Semantic Similarity using Sentence Transformer (**Sentence-BERT**).
- Implemented Nuclear Documents classification for their error type and analysis for Nuclear Power Plants using **BERT**.
- Constructed organizational Network taxonomy from Nuclear operation records using Python, NetworkX and D3.js, and visualize them to deduce the error flow between different roles and improved decision making.

Cognizant | Sr. Software Engineer Pune, India | Mar'16 – Dec'17

- Improved client(UBS)'s wealth management portfolio's functionality by developing more than 10 REST webservices (Using Spring REST, Spring Boot and Data) for requirements like assets, liabilities and mortgage information.
- Improved read/write performance by implementing Spark's cluster computing capabilities with Cassandra DB to manage large amount of data. Incorporated SQL queries into Java Code for processing business logic on data.
- Employed Agile (Continuous Integration) using Jenkins. Performed QA using JUnit and Mockito with coverage > 95%.

IBM | Software Engineer Pune, India | Dec'12- Mar'16

- Performed back-end development, maintenance and enhancements of core modules of Daimler AG's Employee and Plant's webportal using Java, Servlets and JSP.
- Implemented critical business enhancements (like filtering from date, newly added course features) in training modules.
- Enhanced the code in production to tackle frequent bugs which further reduced incidents by 70%.

Research Experience

Arizona State University | Masters' Thesis May'19 – Aug'20

- Developed a new **Referring Expression Comprehension** system based on Neural Module Network approach to locate the intended object in an image using PyTorch, achieving the state-of-the-arts results maintaining interpretability.
- Leveraged LSTMs, ResNet and CNNs to develop the system for CLEVR-Ref+ Dataset.

Technical Skills

Languages : Java, Python, SQL, JavaScript, HTML, CSS, XSLT, OOPS
Machine Learning & DL Frameworks: PyTorch, TensorFlow, Keras, Scikit-Learn, Pandas, NumPy
DBs and Tools: MySQL, Cassandra, Postgres, MongoDB, Docker, Hadoop, Jenkins, Git, Kafka, NetworkX
Web Technologies: Spring Framework, Apache Spark, RESTFul Webservices, SOA, Mockito, JUnit, Cloud Computing

Projects

Hot cell analysis on NYC Taxi Trip datasets: (**Distributed Systems, Java, Scala, Spark, Hadoop**)

- Designed and developed a distributed algorithm for identifying most significant hot spot cells from a spatio-temporal data of New York City Yellow Cab taxi trip records spanning January 2009 to June 2015 using Getis-Ord statistic.
- Deployed Apache Spark cluster and Hadoop system for distributed and parallel data processing.

Semantic Search on Movie Database: (**Natural Language Processing, Word2vec, FastText**)

- Developed a Natural Language Processing based system which finds movie name based on user's query by understanding its semantics, not keywords and achieved 80% accuracy.
- Leveraged NLTK, K-Parser, Sent2Vec respectively for Event encoding, Named Entity Encoding and sentence encoding