Utkarsh Vashishtha

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EDUCATION:

Birla Institute of Technology and Science, Pilani Campus, Pilani, India **Aug 2015 – Jul 2019**

B.E(Hons.) Computer Science ; **GPA: 9.28/10.0 – (Distinction)**

Coursework : Probability and Statistics, Advanced Calculus, Operating Systems, Computer Networks, Computer Architecture, OOP principles and design, Machine Learning, Information Retrieval, Computer Programming, Database Systems, Data Structures and Algorithms, Design and Analysis of Algorithms, Compiler Construction, Principles of Programming Languages, Theory of Computation

EXPERIENCE:

AppDynamics, Cisco, Software Engineer : R&D Bangalore, India ; **Jul 2019 – Present**

- Design and development of a distributed data-ingestion platform for streaming data (structured and un-structured) analytics.
- Leveraging open source technologies such as *Apache Kafka, Elasticsearch, Apache Avro, Schema-registry* for the data-plane.
- Management of 30 separate Elasticsearch clusters on Kubernetes (largest cluster with ~300 data node) serving a data ingestion rate of ~100GB per minute. This translates to about ~1 Billion API calls per min.

Qubole Inc., Software R&D Intern Bangalore, India ; **Jan 2019 – Jun 2019**

- Worked on various components of *Presto*, an open source distributed query engine and its server-less offering, *Quantum*.
- Worked on Rubix, a cache for faster query performance on Presto. Worked in a team to enable the High Availability feature of *Quantum* clusters, inclusion of the faraday library for tunnel proxy port in Presto, middleware improvements for stable connection between client and *Presto* servers, *Quantum Hive Auth* (secure layer over the Hive meta-store).

Citicorp Services, Technical Analyst Pune, India ; **Jun 2018 – Jul 2018**

- Development and automation of trade algorithms as an automated script in Python for the real-time detection of trade anomalies, for the Commodities business unit which could then be utilized to make decisions on ad-hoc trade strategies.
- Automation of SDLC Workflow through automatic merging of Source Codes to a common Repository (similar to *Git*).
- Automation of *Microsoft SQL* database scripts validations as a pre-deployment step on Production servers.

YRALS Digital India Pvt. Ltd., Software Engineering Intern Mumbai, India ; **May 2017 – Jul 2017**

- Chroma-Keying : Green-screen(any color) removal effect for videos through any source feed. This was especially useful for ad-hoc scenarios or even while live-videos on web-cam. It was developed entirely in JavaScript to enable browser support.
- Template-Engine : Designed a web-app with a JS/HTML/CSS frontend and a PHP backend to allow users to generate frame templates for automated video creation.

RESEARCH | PUBLICATION:

Application Monitoring using libc Call Interception, *AppDynamics, Cisco R&D* **Jan 2020 – Jul 2020**

- Developed an easy to use, language-agnostic, platform-agnostic monitoring tool, for distributed applications in Golang.
- It works on the principle of interception of *libc* calls and analyzing network data, specifically, the HTTP traffic. The use-cases for this technique vary from Application Monitoring to Network socket management.
- Research work accepted for publication in the *ICICCS 2020 conference proceedings*.

Nowcasting, Undergraduate Research Project **Jul 2018 – Dec 2018**

(*Under the guidance of* ***Dr. Navneet Goyal****, BITS, Pilani*)

- Developed a ML model for Earthquake prediction near water bodies.
- Used Dynamics Factor models, MIDAS regressions and Kalman Filters in State Space to deal with mixed frequency data of earthquakes and the water level of nearby water bodies.
- The implementation was based out of data provided by the Ministry of Earth Sciences, Government of India based on the paper *Geodetic Constraints on Tectonic and Anthropogenic Deformation and Seismogenesis of Koyna–Warna Region, India*.

Human Fall Detection, Undergraduate Research Project **Jan 2018 – Jun 2018**

(*Under the guidance of* ***Dr. Sanjay Singh*** *in CSIR- Central Electronics Engineering Research Institute (CEERI), Pilani*)

- Developed a deep learning model for detecting a human fall using temporal and spatial aggregations from video processing.
- Employed the 3D-CNN and LSTM models for mapping features to a data point which was then fed to a Softmax classifier characterizing it as a fall/no-fall. The classification accuracy varied between datasets, but along with metrics like sensitivity and specificity we were able to achieve state of the art values.

ACADEMIC PROJECTS:

Active Learning for prediction of Heart disease

- Heart disease prediction by leveraging the concept of Active Learning. The idea stemmed from the lack of availability of heart-specialist doctors in the world as compared to the number of patients. Active Learning provides for getting the most informative data labelled from such specialist doctors.
- Used Query-By-Committee with KL divergence on an ensemble of classifiers to achieve a true-positive rate of ~91% on the testing data set.

Hybrid Music recommender system

- Created a music recommender model using both collaborative and content-based filtering trained on the Million song dataset.
- The result of the recommendation was augmented with sentiment analysis considering the recent browsing feed of the user to try and determine their mood and integrate the result with the recommendation provided by the model.

Compiler Construction

- Developed an end to end compiler for a dummy C++ like language in C. Created a Lexer, Parser, Intermediate code generator, ASM code generator to compile and generate the corresponding ASM code.

k-NN classifier in Scheme

- Created a k-NN classifier in the purely functional language scheme.
- Used it further to create a classifier to determine product types being sold in a general store.

Fundamental(Beta) and Technical Analysis of NSE/BSE stock

- Used time-series analysis and beta analysis for predicting the stock price of a company and a bank listed on the BSE (Bombay Stock Exchange) / NSE (National Stock Exchange) using the Capitaline database.

AWARDS / EXTRA-CURRICULARS / SOCIETIES

- **KVPY** (Kishore Vaigyanik Protsahan Yojana) **fellowship,** *Indian Institute of Science*, Bangalore, India **2014**
- **Winner, AppDynamics user-product hackathon,** *AppDynamics, Cisco* **2020**
- **Member, ACM** (Association for Computing Machinery)**,** *BITS-Pilani* Chapter **2016 –18**
- **Captain,** Athletics team, *BITS-Pilani*, won numerous medals as a sprinter for my team **2017 –18**
- **Head, SSMS** (Society for Student Mess services) **technical team**, *BITS-Pilani* **2017 –18**
- **Member, Department of Theatre,** *BITS-Pilani* **2015 –18**

MOOC(s) / PROGRAMMING SKILLS:

- *Golang* principles and optimization for high performance : Cisco Learning and Development program
- *Docker* with *Kubernetes* : Cisco Learning and Development program
- *Apache Kafka, Elasticsearch, Scala* and *Spark* for Big Data and Machine Learning : Udemy
- Neural Networks and Machine Learning, : Coursera
- Programming : *Java • C • C++ • Python • Golang • Ruby • R*
- Frameworks : *Elasticsearch, Hibernate, SQL, Kafka, Presto, Spark, Ruby on Rails, Guice framework, Gradle, Apache Avro, Schema-Registry, PHP, JS.*