SHUBHAM SINGHAL

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Passionate Software Developer and Machine Learning Engineer focused on building intelligent solutions which humans can interact intuitively.

EDUCATION

MSCS, Machine Learning, **Georgia Institute of Technology, Atlanta, USA** Graduating in May 2020 3.33/4

- Course Work – Numerical Linear Algebra, Artificial Intelligence, Machine Learning, Deep Learning, Computer Vision

B.tech. (I.T.), **Indian Institute of Information Technology, Allahabad, India** June 2010 –July 2014 9.27/10

- Course Work – Data Structure and Algorithms, Linear Algebra, Operating Systems, Distributed Systems, DBMS

PUBLICATION

D. Tomar, S. Singhal, and S. Agarwal, "Weighted Least Square Twin Support Vector Machine for Imbalanced Dataset," Int. J. Database Theory Appl., vol. 7, no. 2, pp. 25–36, 2014

RESEARCH EXPERIENCE

Indian Institute of Technology, Bombay **Jan 2014-June 2014**

- ***Eye Tracking for Natural Language Processing***.

To identify cognitive underpinnings in the text, an algorithm to generate consensus scanpath (eye movements) out of multiple scanpaths using **Bayesian Probability Reasoning** and **Hidden Markov Model** was proposed.

Indian Institute of Science, Bangalore **May 2012-June 2012**

- ***Analysis of eye gaze scanpath data.***

To determine the dependency between different sentences in the text, an algorithm was proposed to convert scanpaths into an **undirected weighted graph** by combining saccades to form edges and fixations as nodes.

ACADEMIC PROJECTS

Generating sketches from photos and vice versa using Multi-Adversarial Network **Aug 2019 – Dec 2019**

Photos to sketch is considered as image-to-image translation task. Two generator sub networks G_A (for photo to sketch) and G_B (sketch to photo) with 3 convolution/ deconvolution layers were used. Three discriminator sub-network were applied to threes outputs from each generator to provide supervision to the network. It was implemented in **Pytorch** and **Numpy**.

Classification of Images using Artificial Neural Network **Jan 2019 – May 2019**

Classified images using the connectionist model **ANN** with 84% accuracy. Classes were further classified into subcategories using another ANN for each class. Experimented with **SVM's** using **Scikit Learn** to compare the efficiency.

Improving the efficiency of the Information Retrieval system **July 2013 – Dec 2013**

Disambiguated the sense of the ambiguous word in a query by looking at the context in which it is used to retrieve the best relevant documents in the **Information Retrieval System**.

WORK EXPERIENCE

Booking.com, Amsterdam | Software Engineer **August 2018 to August 2019**

- ***Deal of the Day (DOTD)***

Designed an algorithm to determine partners which would be eligible for the DOTD program. The program provides them better ranking in search results on the particular day. Wrote an **oozie Job** in **pyspark** on **Hadoop** clusters.

- ***Campaign Microservice***

Implemented a microservice to create campaigns. **Alerting Monitoring** and **A/B testing** were integral part of the service.

Microsoft India Development Center, India | Software Engineer **March 2017 to August 2018**

- ***Drive Vicinity***

Researched, designed and implemented the algorithm to fetch the drives data from **Amazon Redshift**, determining regions where people drive the most, pushing most visited locations to **S3** and exporting further down to **Postgres**.

- ***Reporting Microservice***

Wrote a **microservice** to generate reports on users' drives. Microservice was deployed on **Kubernetes**, as **Docker** Containers. Service was written in **Python 3, Django**. Reports were generated asynchronously using **Redis** queue and **celery** workers. **Integration Testing**, code coverage with **Unit Testing** was maintained above 80%**.**

- ***GDPR***

Wrote the service which will delete the users' data on request. Delete request could be withdrawn within 30 days. Users' delete requests were stored in **Azure Cosmos DB (NoSql)**. Cron Job will run every day to delete 30 days older requests.

Adobe Systems, India | Member of Technical Staff **July 2014 to March 2017**

- ***2 way SSL in Adobe Experience Manager (AEM)***

Added the support for **2 way SSL** authentication using **Java** in AEM on web.

- ***Adobe SignIn workflow***

Integrated Adobe Sign in the AEM workflow, asynchronously by **multithreading**. Threads kept on polling the Adobe Sign service to check for user's action, later they callback the workflow when user sign the document.