KARTIK MITTAL

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EDUCATION

University of Massachusetts Amherst, USA Aug 2019 – Dec 2020

Master's in Computer Science ***GPA: 4.0/4.0***

Relevant Coursework: Natural Language Processing, Algorithms for Data Science, Machine Learning, Probabilistic Graphical Models, Neural Networks, Business Intelligence & Analytics

Amrita University, Coimbatore, India Jul 2013 – May 2017

Bachelor's in Computer Science and Engineering ***GPA: 9.47/10.0***

Relevant Coursework: Data Structures & Algorithms, DBMS, OS, Software Engineering, Pattern Recognition, Big Data Analytics

PROFESSIONAL EXPERIENCE

Information Extraction and Synthesis Laboratory (IESL), UMass Amherst

Research Intern Jun 2020 – Present

- **Commonsense Knowledge through AMR Graphs (in-progress):** Developing an explanation model to understand the **syntactic commonsense** inherent in natural language, through AMR Graphs.
- Building an end-to-end **pipeline** for knowledge-based text generation. **(Python, Penman, AMR, Pytorch)**

Centre for Knowledge Communication (CKC), UMass Amherst

Graduate Student Intern May 2020 – Aug 2020

- Performed **session management** in Java and developed analysis charts using JavaScript for a K-12 education-based application, that encourages growth mindset towards mathematics. **(Java, Python, JavaScript, AWS)**
- Leveraged **Spring MVC** and **Django** framework to develop screens for student and teacher interactions.

GE Healthcare, Boston

Graduate Student Researcher Jan 2020 – May 2020

- **Mindshare Analysis of Medical Literature:** Built a **Named Entity Recognition** tool that would automatically extract entities of interest from published medical literature using **semi-supervised** methods. **(WISER, spaCy)**
- Generated trends from extracted results to facilitate decision making for stakeholders. **(Python, Docker)**

Oracle, Hyderabad

Software Engineer Jan 2017 – Jul 2019

- Worked on the **migration** of an on-premise legacy application to an application on **Oracle Cloud**, built on the **microservice** architecture using Jersey framework. **(Java, Jersey, REST, OJET)**
- Contributed to a unique **multi-tenant RBAC user management** solution for an in-house product. **(Java, Containers)**
- Created a **data generation framework** for simulating real-time customer transactions and enhanced the performance of the developed **REST APIs** by **65%**. **(Python, AWR, JMeter, Grafana)**
- Reduced the deployment time by configuring **continuous deployment (CD)** on Jetty Webserver using Jenkins, saving approximately 50 hrs/month of development time. **(Jetty, Jenkins)**
- Executed Security scans, performed CVSS scoring, and mitigated the issues considered in the **OWASP** Top 10 vulnerabilities. **(Fortify, ZAP)**

ACADEMIC PROJECTS

- **Underwater Image Enhancement Using Residual Net:** Enhanced underwater images using a CNN based model with a SSIM score of 0.92, PSNR score of 25.91 and achieved model optimization compared to UWCNN, WaterNet and FUnIE-GAN models. **(Python, Pytorch, Numpy, Keras, Computer Vision, CNN)**
- **Classifying Audience Response on Political Speeches:** Probed **BERT** to understand the underlying embeddings obtained from transfer learning on a downstream task of classifying audience response and built a predictive model with 81% accuracy. **(NLP, Python, Tensorflow, Jupyter, RNN)**
- **Recommending Customizable Products – Knapsack with Conflict Graph (KCG):** Developed a novel framework using knapsack to recommend top configurations for customizable products, considering the component dependencies and analyzed the dependencies using Gephi. **(Python, Knapsack, Gephi)**

SKILLS

- **Languages:** Python, Java, C++, SQL, JavaScript, HTML
- **Framework & Tools:** AWS, Gradle, Hadoop, MongoDB, Git, AngularJS, Docker, Jenkins, Gephi, Oracle DB, Vault, JIRA, Tableau, Linux
- **ML/AI:** Pytorch, Keras, Tensorflow, CNN, DNN, Pandas, Matplotlib, NLTK, Scikit-learn, spaCy