Shivam Kumar

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Examination	University	Institute	Year	CPI/%
Graduation	IIT Goa	IIT Goa	2020	9.22/10.0

Interests: Algorithms, Machine Learning and Software Development

Work Experience

AI Engineer *Bengaluru, India*
Learngram Technology India Apr 2020 - Present

- Created and deployed support chatbot using RASA for Jnrlink Kids App to guide customers to resolve some of the common issues faced by them.
- Proposed a machine learning (ML) model to quantify the extent of the relationship between a given pair of text and verified its efficacy.
- Proposed an ML model to assess the engagement of students during the online study and led its development.
- Proposed and implemented an automated way to generate training data to train the voice cloning model.
- Designed, developed, and deployed a file management system, like Microsoft SharePoint, for Learngram to manage files of various products.

Research Intern *NTU, Singapore*
Supervisor - Prof. Thambipillai Srikanthan Dec 2019

- Experimented with various Graph Matching techniques to achieve a better correlation between binary packages undergoing different compilation paths.
- Proposed a novel efficient technique for vulnerability detection using neighborhood aggregated locality sensitive hashing.
- Achieved around 60% accuracy in detecting the presence of vulnerable library versions in binary packages. Integrated the algorithm into the engine to achieve over 90% accuracy in the detection of vulnerable libraries used in binary packages.

Research Intern *NTU, Singapore*
Supervisor - Prof. Thambipillai Srikanthan May 2019 - Jul 2019

- Devised a novel method to automate the detection of open source vulnerabilities in binary files.
- Proposed methods for the efficient extraction of unique features inherent in both source code and binary files.
- Deployed machine learning and hierarchical filtering techniques using these unique features to get a prima facie evidence of vulnerabilities. In addition, hashing algorithms and subgraph isomorphism were employed to confirm their presence.
- Demonstrated the effectiveness of the proposed methods using Radare2 reverse Engineering platform for detecting vulnerabilities in libraries.

Scholastic Achievements

- Technical Excellence Award 2018-2019, IIT Goa
- All India Rank 3120, JEE Advanced 2016 (among 200,000 qualified candidates from the total of 1.2 million candidates)

Projects

Sourcediff *https://github.com/abhyuday07/sourcediff*
Team Project(Team of two) June 2019

- A tool to find differences between two source codes written in C/C++.
- We used the Abstract Syntax Tree (AST) of the source codes generated using clang to identify the differences between them.

Predicting Recommendation from Reviews *GitHub Link*
Course Project (Artificial Intelligence Course) November 2018

- Compared the performance of Support Vector Machine (SVM) and Neural Network (NN) for predicting whether a user has recommended the product or not.

Image Captioning System *GitHub Link*
Course Project (Deep Learning Course) October 2018

- Used a convolutional neural network (CNN) encoder and a recurrent neural network (RNN) decoder to produce descriptions for real-world images.

Skills

- **Primary Languages**: Python, and JavaScript
- **Machine Learning**: TensorFlow, PyTorch, scikit-learn
- **Cloud services**: Google Cloud Platform (Cloud SQL, Storage, Compute Engine), AWS (EC2, S3, Amazon-SageMaker)
- **Deployment**: Docker, PM2, Supervisor, Nginx
- **Utilities**: Linux shell utilities, Git, LaTeX, Vim

Position of Responsibility

- **Teaching Assistant, Foundations of Machine Learning**, Spring semester 2019-20, IIT Goa
- **Internship Coordinator**, *Placement cell*, IIT Goa, Oct 2017 - Sep 2018
- **Teaching Assistant, Computer Programming and Utilization**, Autumn semester 2017-18, IIT Goa

Relevant Courses

Artificial Intelligence (*AA*), Linear Algebra (*AA*), Data Structures and Algorithms (*AA*), Data Analytics (*AA*), Design and Analysis of Algorithms (*AA*), Intro to Compilation Techniques (*AP*), Database and Information systems I (*AP*), Computer Networks (*AA*), Automata Theory (*AA*), Digital Logic Design and Digital Systems (*AA*), Logic in Computer Science (*AA*), Modelling and Simulation of Systems (*AA*), Markov chains and their Applications (*AA*), Combinatorial Optimization (*AA*), Foundations of Functional Programming (*AA*)

Laboratories - Computer Architecture (*AA*), Artificial Intelligence (*AA*), Data Structures and Algorithms (*AA*)

AP: Grade for exceptional performance, *AA*: Highest grade after *AP*