Hossein Sharifzadeh

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RESEARCH INTERESTS

Cloud Computing
Distributed Systems and Big Data
Federated Learning
Computer Networks
Database

EDUCATION

Amirkabir University of Technology (Tehran Polytechnic) Sep 2016 - Dec 2020
Undergraduate Overall GPA: 3.18
Department of Electrical Engineering
Thesis: Improving **Cloud Services Security** by implementing **"homomorphic"** encryption
Supervisor:Prof. **Hassan Taheri**

National Organization for Development of Exceptional Talents 2016
High School Diploma In Mathematics and Physics Overall GPA: 4

RESEARCH EXPERIENCE

PARSIAN ROBOTICS LAB May 2018 - Feb 2019
Member of AI Team *Prof. M.A.Khosravi*

- Experience of working with Linux; Ubuntu and ROS framework
- Learning C++ and object-oriented programming.
- Implementing CMU voice recognition package named Pocketsphinx on robots to enable vocal command.

PARSIAN ROBOTICS LAB Feb 2019 - April 2020
Senior member of Electronic Team *Prof. M.A.Khosravi*

- FPGA programming using Verilog and VHDL.
- Experience of PCB designing using Altium Designer.
- Designing and implementing two way error detection system protocol based on UART

COGNITIVE ROBOTICS LABORATORY Aug 2019
Member of Team *Prof.S.Shiri*

- Member of expedition team into FIRA Robo World Cup 2019 South Korea
- Working on path planning algorithm and computer vision for RoboChallenge League

TEACHING EXPERIENCE

AMIRKABIR UNIVERSITY OF TECHNOLOGY Sep 2020 - Jan 2021
Data Transmission Teaching Assistant

- containing syllabus like; protocol layers and services, reliable data transfer and introduction with network security.
- under supervision of **professor. Hassan Taheri**

WORK EXPERIENCE

Brtech (Hamrah-e-Avval) Mar 2020 - present
Big Data Engineer

- Our big data project consists of parts like active archiving, real time data stream processing, and providing services and APIs for clients
- My job was designing data pipelines and creating ETL applications
- Work on Hadoop Ecosystem and tools like Hive, Yarn
- Work with distributed queues Zookeeper, Kafka and Avro

· Work with Elasticsearch, Logstash, Kibana and Beats for collecting data specially logs and metrics
· Analyse and process data with Spark and Flink
· Visualise the result with Grafana
· Core R&D member for Bigdata solutions in MCI

Brtech (Hamrah-e-Avval) Apr 2019 - Mar 2020
DW/BI Engineer

· Our DW/BI project gathers data from all organizations from company and stores it in an Oracle database and provide data and dashboards for managers
· My job was designing data pipelines and creating and debugging ETL programs.
· I also did data modeling and solution architecture tasks.
· Working with Oracle RDBMS and Tools like: ODI - OBIEE - Oracle Cloud
· SQL and PL/SQL skills and database and ORACLE tools like Toad, ODI, OBIEE, and OCDM
· Working with data modeling tools like SAP Powerdesigner, Erwin and designing Database
· Built and deployed ETL packages, focusing on high-availability, Fault Tolerance, and Auto-Scaling

SKILLS

Computer Languages	SQL, Python, Scala, Bash Script, C/C++, MATLAB, VHDL, Verilog, LaTeX
Software & Tools	Spark, Kafka, ODI, PowerDesigner, Oracle DB, Hive, Git

RELEVANT COURSES

Artificial Intelligence Computer Science Department
Search algorithms, logical agents and introduction with ML, neural networks, genetic algorithms and machine vision
Data Transmission Course of BSc
Advanced Telecommunication networks Course of MSc
Machine learning Coursera Stanford University
Linear regression, Neural networks, unsupervised learning

Big Data Analysis with Scala and Spark Coursera EPFL and CMU University
RDDs Transformations and Actions, Cluster topology, pair RDDs and operations, partitioning, Dataframes, Datasets

Cloud Computing Basics (Cloud 101) Coursera
scalable and distributed computing, IAAS, PaaS, SaaS, FaaS, Azure API
Data Science Math Skills Coursera Duke University
Computer Vision Basics Coursera University at Buffalo

HONORS AND AWARDS

3rd Place Robo Challenge Simulation League 11th - 16th Aug 2019
11th - 16th Aug 2019, Changwon, South Korea *FIRA Robo World Cup*

· Path Planning algorithm implemented on ROS framework and Gazebo was being used for simulation environment.

Ranked top 0.5% Among 160,000+ Students in the Nationwide University Entrance Exam Jul 2016 , Tehran, Iran

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PROFESSIONAL ACTIVITIES

Technical Committee Member 1 - 4 Mar 2019, Tehran, Iran
Simulation League *Amirkabir Robotics and Artificial Intelligence Competitions*

· Simulation league divided into two sections of soccer and path planning challenge

Technical Committee Member Aug -Sep 2019
Simulation Environment developer team *Fira Robo World Cup 2020*

- Soccer simulation based on ROS and Qt written in C++ language .
- This platform was ready to be used as simulation environment for 2020 competitions

NOTABLE PROJECTS

Improving cloud systems security by implementing homomorphic encryption
Sep 2020 - Present

- **Homomorphic encryption** is a type of encryption which allows execution of most logical functions on encrypted data whithot decryption of data.
- Homomorphic encryption is potentially useful in cloud computing or any kind of IaaS or PaaS applications.
- Homomorphic data transmission written in Python by using pystf and torch libraries

Migration of Archived Data and ETL Jobs of Hamrah-e-Avval Company
Feb 2020 *BRTech*

- RDBMS databases despite all advantages are hard to cascade and warrant consistency.
- We had to migrate obout 2 Petabytes of data from Oracle Database into a Bigdata cluster to have a less expensive active archive and protect data by creating replications of it.
- Tools used to move the data from the RDBMS database to the Bigdata cluster, and HDFS was Sqoop and ETL jobs written in Spark programs and Scala language. The Spark jobs consumed data from the Kafka topics, and after transforming it to the standard format, they loaded data into HDFS files and hive tables.

Calculating Realtime Usage of Mobile Data for Hamrah-e-Avval Subscribers
Jun 2020

- Spark code written in Scala reading from a kafka topic then fetch data in RDD and aggregate data per timeslot then convert RDD to dataframe and insert final result into hive table

Sorting and Indexing Most Used Languages in Wikipedia Pages
May 2020 *Coursera Bigdata Course*

- Spark code written in Scala
- Reading collected data by EPFL university in dump file **HERE**
- The goal is to gather data and generate a table or DataFrame of most used programming languages in Wikipedia
- So I created a RDD and filled it with the data from dump file then aggregated the data on their language and sorted them per count of the pages on Wikipedia.

Implementing K-means Clustering Algorithm on Data of Stackoverflow Posts
Jun 2020 *Coursera Bigdata Course*

- Spark code written in Scala
- Reading collected data by EPFL in dump file university **HERE**
- Clustering the given data based on scores and programming languages then aggregate and sum this data to new RDDs

Calculating the Time People Allocate to their Daily Activities
Jul 2020 *Coursera Bigdata Course*

- Spark code written in Scala
- Reading collected data by kaggle in dump file **HERE**
- Classifying cumulative time each person allocate to works in each group of “Primary needs”, “Work”, and “Others”
- Aggregating data based on people’s age, gender, and employment status
- The goal is to identify how much an average person allocates to each group of works and how it is different between each group of people

PUBLICATIONS

Parsian Extended Team Description Paper
THE ANNUAL ROBOCUP INTERNATIONAL SYMPOSIUM

- PARSIAN 2020 Extended Team Description Paper.