Mohammad Amin Bajand

Department of Computer Engineering, Sharif University of Technology, Azadi Ave., Tehran, Iran
+98 912 069 5915 | maminbajand@gmail.com | maminbajand.github.io

Education

Sharif University of Technology Tehran, Iran
M.Sc. Student in Computer Engineering *Sep 2019 – Feb 2022 (Expected)*

- **GPA:** 19.17/20 - 4/4 (Overall)
- **Ranked 1st** in Cumulative GPA among all entrants of 2019, Secure Computing, Computer Engineering Department
- **Thesis:** Distributed Anomaly Detection on the IoT Edge
- **Thesis Advisor:** Dr. Morteza Amini

Qom University Qom, Iran
B.Sc. in Computer Engineering *Sep 2013 – Sep 2018*

- **GPA:** 19.52/20 - 3.98/4 (Overall)
- **Ranked 1st** in Cumulative GPA among all entrants of 2013, Software Engineering, Computer Engineering Group
- **Thesis:** Sentiment Analysis Based Machine Labeling on Persian E-Commerce Websites
- **Thesis Advisor:** Dr. Hossein Amirkhani

Shahid Qoddousi High School (NODET) Qom, Iran
Diploma in Mathematics and Physics Discipline *2006 - 2013*

Research Interests

Computer Vision, Object Detection, Data-Intensive Computing, Big Data Analytics, Distributed Machine Learning, Distributed Systems Design, Cloud/Edge Computing

Honors And Awards

- **Ranked 1st** in Cumulative GPA among all entrants of 2019, **Secure Computing, Computer Engineering Department**, Sharif University of Technology, Tehran, Iran. *2021*
- **Ranked 1st** in Cumulative GPA among all entrants of 2013, **Software Engineering, Computer Engineering Group**, among more than 20 students, Qom University, Qom, Iran. *2018*
- Member of **Iran's National Elites Foundation**. *2021*
- Member of **National Organization for Development of Exceptional Talents (NODET)**. *2006 - 2013*

Research Experience

Distributed Anomaly Detection on the IoT Edge *September 2020 - Present*
Advisor: Dr. Morteza Amini

- Using LSTM/GRU networks to detect anomalies, e.g., malware and malfunctioning in IoT devices at the edge of the network.
- Using federated learning for privacy-preserving model aggregation in Edge/Cloud hybrid environments.
- Improving solutions for lightweight model optimization in Edge/Cloud hybrid environments.

Fine-grained Mobile Network Analytics *2018 - 2020*
Advisor: Dr. Abolfazl Diyanat

- Developing solutions for multi-level QoS and QoE measurements on Android smartphones.

Sentiment Analysis Based Machine Labeling on Persian E-Commerce Websites *2017 - 2018*
Advisor: Dr. Hossein Amirkhani

Work Experience

Mahsan *Sep 2020 - present*

Senior Software Developer

- Distributed systems design
- Large-scale data storage and retrieval

Parto Ertebat Saba *May 2018 - Aug 2020*

Senior Software Developer

- Developing solutions for multi-level QoS and QoE measurements on Android smartphones.

Tehran Arrhythmia Clinic *May 2015 - Oct 2017*

Full-stack Web Developer

Teaching Experience

Advanced Network Security *Spring 2021*

Teaching Assistant *Sharif University of Technology*

Operating Systems *Spring 2020*

Teaching Assistant *Sharif University of Technology*

Projects

Redis Sync-Intensive System *2021*

OpenShift, Apache Kafka, Logstash, ClickHouse, Apache Spark (Spark ML) *Mahsan*

- Devising a method for high-performance syncing between nodes cluster.
- Creating a high-performance Redis connection with a lower system-call footprint.
- Designing a scalable, high-performance solution for collecting, pre-processing, delivering, and online anomaly detection on data.

Real-time Object and Human Tracking Platform *2020*

YOLO, OpenCV, Apache Kafka, Apache Cassandra, Docker, OpenShift, Python

- Real-time data-intensive object detection platform.
- Analyze multiple video stream sources simultaneously and track/log specific person activities.

Real-time Face Recognition Platform *2020*

Keras, OpenCV, Apache Spark, Apache Kafka, Apache Cassandra, Python

- Real-time data-intensive face recognition platform.
- Analyze offline/online video streams (e.g., Youtube) and tag videos by participants in videos.

Data-Intensive Log Manager Platform *2020*

Apache Kafka, Apache Cassandra, Logstash, Filebeat, Docker, OpenShift, Python

- Collect, preprocess, and store a large amount of generated logs by nodes.

FIM: File Integrity Monitoring *2018*

Auditd (Linux Auditing System), Elastic Stack, Apache Cassandra, Apache Spark, Python

- Linux file system monitoring, event collection, and rule based anomaly detection.

Protocol/Content Based Anti-Phishing for Iranian Payment Gateways *2018*

Python, MySQL, Javascript, HTML, CSS

- Collect web content and alert user through Chrome browser plugin in case of finding any suspicious content.

A Cheap Smart Home Solution *2017*

Python, PHP, C, Raspberry Pi, Arduino, ESP-8266 Modules

- Managing home appliance and monitoring status through a web interface.

iTelep: A Desktop Messenger *2015*

Java, Java NIO, MySQL, Redis (As Queue)

- A light-weight desktop messenger.

Selected Courses

- Formal Methods for Information Security (20/20)
- Database Security (17.7/20)
- Advanced Network Security (18/20)
- Network Management (20/20)
- Artificial Intelligence and Expert Systems (19/20)
- Computer Networks (20/20)
- Operating Systems (20/20)
- Principles of Database Design (20/20)
- Advanced Programming (20/20)
- Data Structure and Algorithms (19/20)
- Algorithm Design (20/20)
- Data Mining (20/20)
- Introduction to Information Retrieval (19.5/20)
- Engineering Mathematics (20/20)
- Microprocessors and Assembly Lang (20/20)
- Compiler Design Principles (20/20)
- Theory of Languages and Machines (20/20)
- Logical Circuits Theory (20/20)

Technical Skills

Programming Languages

Fluent: *Python, Java, PHP, Bash, Android Platform* | ***Familiar:*** *C, C++*

Cloud/Edge Computing, Container Platforms, and Virtualization Tools

DC/OS, Apache Mesos, OpenShift, OpenStack, Kubernetes, Docker, LXD, VMware ESX, Oracle VirtualBox

Databases, Datastores, and Tools

Apache Cassandra, Apache HBase, ClickHouse, Elasticsearch, MongoDB, MySQL

Big Data Platforms and Tools

HDP Stack, Elastic Stack, Apache Spark, Apache Kafka, Apache Storm, Apache Flink, Apache Ambari

Machine Learning Frameworks, Libraries, and Tools

Pytorch, Keras, Scikit-learn, OpenCV, Pandas, Numpy, YOLO, Spark ML

CI/CD Tools

Git, Puppet, Vagrant, Jenkins, GitLab

Operating Systems

CentOS, Ubuntu, OpenSUSE, Manjaro, Windows

Language Skills

English (TOEFL Expected at Nov 2021), **Persian** (Native)

References

References, Further information, and Proofs are available upon Request