AMMAAR IFTIKHAR

CC certified | Security+ scheduled

Distributed And Parallel Systems |
Cybersecurity | Machine Learning |

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SUMMARY

With hands-on roles as a software engineering intern across three distinct companies, I've demonstrated my adaptive prowess in embracing diverse tech stacks and driving meaningful contributions.

EDUCATION

University of Sydney
Sydney, NSW Australia

Master's of Science in Computer Science. 2024-26

- System Programming
- Parallel and Distributed Computing
- Data Engineering
- Information Theory and Complex Systems
- Cybersecurity Engineering
- NLP
- Algorithms & Data Structures
- Error Control Coding
- Large Scale Networks
- Applied Cybersecurity

Bilkent University
Ankara, Turkey

Bachelor's of Science in Computer Engineering
CGPA: 3.60/4 Duration: 2019 – 2023
Graduated: Magna cum Laude

- Algorithms (CS474 or CS502)
- Statistical Learning & Data Analysis
- Estimation & Detection Theory
- Engineering Maths I
- Probability & Statistics
- Database Systems
- Neural Networks
- Introduction to Machine Learning
- Automata Theory & Formal Languages
- Data Structures I & II
- Operating Systems
- Algorithms & Programming I & II

SKILLS

Programming Languages

- C++/C
- Java
- Python
- JavaScript
- GoLang
- SQL

Frameworks & Programs

- Spring-boot
- Express.js
- Django
- Flask
- Metasploit
- ZAPROXY

Operating Systems

- Ubuntu
- MacOS

Important Libraries

- Pytorch
- Numpy
- Gurobi
- CONVEXOPT
- Tensorflow
- Pandas
- JDBC

PROFESSIONAL EXPERIENCE

Software Engineering Intern (SRE Team)
Bayzat | June - August 2022

- Implemented a software management solution aimed at streamlining infrastructure and deployment changes.
- Utilized GoLang as the primary programming language to construct the core architecture of the application.
- Engineered a user-friendly Text User Interface (TUI) using progressive libraries like Bubble Tea and Glow.
- Developed a seamless JSON data integration pipeline, enabling the tool to effectively process and manage infrastructure changes.

Software Engineering Intern
Radity | Sept - Dec 2021

- Architectured packages for a dynamic SaaS application, effectively accelerating the software development lifecycle.
- Collaborated proficiently with SMTP and Django libraries, seamlessly integrating critical functionalities into the application.
- Proactively identified and addressed security vulnerabilities by conducting an exhaustive investigation of one of the company's websites.
- Transformed the developed solution into a robust boilerplate, now serving as a foundation for other applications within the organization.

Software Engineering Intern
FDNSOFT | June 2021 - Aug 2021

- Introduced enhancements, including an advanced search feature and visually captivating graphics, to a company application.
- Showcased exceptional problem-solving skills by identifying and rectifying bugs, while also playing a pivotal role in crafting user-centric UI designs for new interfaces.
- Harnessed the power of Flutter for frontend development, seamlessly blending creativity and functionality to enhance user experiences.
- Leveraged the capabilities of Node.js for backend development.

HONORS

- 9 Course Distinctions at University of Sydney
- 5 High Honors : Spring 22-23, Fall 22-23, Spring 21-22, Fall 20-21, Fall 19-20
- 3 Honors : Fall 21-22, Spring 20-21, Spring 19-20
- Bilkent Undergraduate Scholarship 2019-23
- 2nd Rank - 2014 Inter School Essay Competition, Tyndale Biscoe & Mallinson Educational Society

ORGANISATIONS

- ACM
- IEEE

PROJECTS

Pandemic Manager

- Created mechanism that streamlines student information by enabling them to input PCR, HES Codes, and Vaccine details
- Designed the architecture of the application alongside teammates.
- Wrote backend code to monitor student campus access, attend classes, and weekly reports, fostering a safe academic environment.
- Used MySQL and Spring-boot for the backend of the application.
- Completed web based application and presented and demonstrated it.

- HTML5
- CSS
- Java
- Springboot
- MySQL
- UML diagrams

Lung Disease Classifier: Machine Learning Achievement

- Engineered diverse machine learning models (SVMs, Neural Networks, ViTs) to classify lung X-rays into five categories.
- Compared the performance of different structures on the classification task.
- SVMs trained using 1 v 1 and 1 v all were also compared.
- Demonstrated a remarkable 92% accuracy on the test dataset.
- Earned a perfect score for the final report.

- PyTorch
- CONVEXOPT
- NUMPY
- SVMs
- ViT
- Neural Networks

RoadVisor

- Contributed to the development of an innovative Augmented Reality navigation application.
- Integrated machine learning models to aid drivers in road sign detection, pedestrian recognition, and traffic light identification.
- Finetuned Yolov7, road boundary, and lane detection models.
- Deployed the machine learning models on cloud.

- Python
- Flask
- Pytorch
- Yolov7
- Finetuning
- Lane detection models

SnatchIt

- Spearheaded the creation of SnatchIt, an application for Bilkent students to exchange and sell academic books.
- Managed the team as the project leader.
- Implemented frontend using Android studio and Java.
- Used Firebase as the database.
- Functionalities included book request creation, book search, buy, or selling.
- Successfully executed during the Introduction to Algorithms II course, earning an A grade.

- Java
- Android Studio
- XML
- Firebase

Homophily and Giant Connected Component in Stock Time Series Data - Large Scale Networks

- Preprocessed time-series data for 4440 stocks over a 5-month period from multiple APIs and datasets
- Developed graph representations of stock relationships using entropy-based measures (Pointwise Mutual Information) and Mean Absolute Distance
- Analyzed graph properties such as sparsity, clustering coefficient, and connectivity under various proximity thresholds
- Observed centrality trends and validated hypotheses regarding index fund influence and sector-based clustering
- Interpreted the presence of giant components as evidence of market sentiment and interdependence
- Created visualizations, presentation slides, and a project video
- Wrote core Python programs to compute distance metrics (PMI and MAD) and construct stock similarity graphs

- Pandas
- Python
- PyTorch
- NetworkX
- Hugging Face Dataset
- yFinance

CodeBank: Full-Stack Development Project

- Developed a discussion and coding problem platform, enabling user engagement and coding interview simulations.
- Designed the database and application architecture alongside teammates.
- Functionalities including signup, login, meeting organization, discussion forum, problem solving challenges., et cetera.
- Implemented Spring Boot backend, React frontend technologies, and SQL.
- Successfully delivered for the Database Systems course at Bilkent University.
- Received an A grade for the project.

MLRI - MRI Classification via Transfer Learning

- Pioneered an Alzheimer's disease detector utilizing Convolutional Neural Networks.
- Achieved an outstanding accuracy of 98.67% on the test dataset.
- Performance of different CNNs like RESNet, VIG16, Inception, et cetera were analyzed and compared.
- Implemented the project using TensorFlow technology.
- Attained an grade for the project.

- Tensorflow
- Python
- Transfer Learning

Advanced Neural Networks Project

- Constructed and compared various RNN models for human activity prediction, including Gated Recurrent Networks, LSTMs, and RNN.
- Constructed Autoencoders and FCNs.
- Developed models from scratch using Numpy library.
- Demonstrated an impressive 92% accuracy on the Test set.
- Executed as part of the Neural Network course at Bilkent, resulting in a perfect score.

- Python
- Numpy
- FCNs
- RNNs
- LSTMs
- Autoencoders

Breast Cancer Feature Selection Using Information-Theoretic Measures

- Compared different mechanisms to select subset of features that maximized the mutual information about the presence or absence of cancer.
- Used measures such as Mutual Information, Conditional Mutual Information to find the subset of features that contained maximum information about the label.
- Built and trained PyTorch-based Autoencoder for dimensionality reduction.
- Used PCA for dimensionality reduction
- Received a fdistinction for the project final report and

- Java
- Python
- Keras
- Pandas
- JIDT
- PyTorch

Building and Orchestrating a Data Pipeline for an Analytics Suite

- Built an end-to-end data pipeline using Apache Airflow for orchestration and dbt for transformation, deployed via Docker containers
- Created and scheduled custom Airflow DAGs to extract, transform, and load both synthetic and real-world healthcare data (MIMIC), ensuring modular and traceable workflows.
- Constructed staging, dimension, and fact models using dbt; implemented integrity tests and macros to validate transformations and ensure data consistency.
- Built interactive dashboards in Apache Superset to visualize insights from the transformed data warehouse, supporting business and clinical decision-making.
- Documented pipeline architecture, setup process, and system components in a technical report; packaged the entire solution in a portable Docker environment.

- Python
- Docker
- yaml
- Apache Airflow
- Apache Superset
- Dbt