

# MOHAMMAD KAIF

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## EDUCATION :

### The Pennsylvania State University, University Park, PA

*Bachelor of Science in Computer Science, Specialization in Mathematics*

**May 2023**

GPA 3.78

- CS: Database Systems, Distributed Systems, Search Engines, Parallel DS & Algorithms, Software Design
- ML: Deep Learning System,, Advanced Deep Learning, ML with Large Datasets, NLP
- Math: Modern Regression, Intro to Math Finance, Probability & Stats, Multivariate Calculus, Linear Algebra

## WORK EXPERIENCE :

### Qualcomm

**San Diego, CA**

*Embedded SWE Intern*

*Present*

- Developed python-based register compute tool with GUI across 5G-NR wireless transceivers, RF, analog, and digital cores.
- Implemented end-to-end gain calibration, developed algorithms for wide-band RSS and RSB measurement in MATLAB, C/C++.
- Delivered a time-critical tool for silicon-on-dock bring up and characterization of flagship RFIC/ mixed-signal 5G-NR component.
- Deployed API/wrappers for instrument control on benches, automated data collection, applied signal and data processing.
- Executed baseband RX ADC DNL-INL characterization, FFT, Cap Calibration and repeatability, PLL stability, etc.

### Bright Vision Institute- Lockheed Martin

**Remote**

*Software Developer Intern*

*May 2020 - August 2020*

- Modeled Ship Cruise Plan Activation Window in IDATA for Sikorsky's Black Hawk Helicopter.
- Designed and migrated custom EXCEL metrics to Tableau.
- Created trade studies for Drone Racing League's Intern Quadcopter Design Project.
- Used ReactJS, CSS, C++, Java, JavaScript, and HTML to implement the feature.

## PROJECTS :

### System Programming

**2022**

- Worked on a flat hierarchy file system, using operations such as read, write, update etc.
- Implemented LRU cache concept to improve the file system efficiency.

### Data Warehouse Design for Business

**2021**

- Developed a system to store, retrieve, structure, modify and analyze data from different sources.
- Created a central repository, consisting of such a data warehouse, which can manage inventory, logistics, and optimum profits.
- Developed using Apache Hive, Cpp, and Java.

### Web Application (PlasmaLink)

**2021**

- Developed and Deployed a Django WebApp Devoted towards COVID-19 Emergency Services.
- Implemented API user Authentications, Maps, and reCAPTCHA.
- Used Django, Python, HTML, CSS, and Java.

### Classroom Scheduler

**2020**

- Developed an application using JFrame and Database Management.
- Helped the faculty to make modifications to a reservation such as booking, canceling, and checking the status of reservation.

## RESEARCH :

### Combo Trade Resolver:

- Designing and creating a python service that consumes exchange combo trade definitions, and resolves them in a centralized TimescaleDB database for post trade analysis.
- Service will run in the production cluster, reducing the memory footprint of a key service for an estimated savings of \$30,000/yr whenever implemented on a trading combo system.

### Profit and Loss Analysis:

- Enriching firm-wide post-trade profit and loss analysis with new algorithms, and increased fidelity.
- Analyzing D1 trading and options hedges with Jupyter Notebooks and Datagrip, and writing production code in Python.
- Thoroughly documenting analysis for further investigation by other teams.

## TECHNICAL SKILLS :

**Languages:** C/C++, Java, Python|HTML5, CSS, JavaScript, Bootstrap|MATLAB, TensorFlow, PyTorch|SML/OCaml  
**Skills:** Machine Learning, Algorithm Design, Backend Infrastructure Design, Mathematical Modeling

## CERTIFICATIONS :

**Stanford University, Machine Learning Certification**

**2022**

**HarvardX Computer Science for Business Professionals**

**2021**

**DevOps Using Terraform Certification**

**2021**

**HarvardX Introduction to Programming with C++**

**2020**

## AWARDS AND HONORS :

**Secured International Rank (15) in the International Mathematics Olympiad (IMO).**