

# Mugared Khalifa

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## EDUCATION

- **University of California Irvine** | Bachelor of Science in Computer Science and Engineering. Sept. 2017 – Jun. 2021  
- Cumulative GPA: 3.87/4.0. Cum Laude.
- **University of California Irvine** | Master of Science in Computer Science. Expected Dec. 2023  
- Coursework: Introduction to AI, Machine Learning, Scientific Computing, Probabilistic Learning, Deep Generative Models.

## EXPERIENCE

- **Software Engineer Co-Op, Skyworks Inc.** Jun. 2021 – Present
  - Researched and architected services on Azure for storing and retrieving attachments on the cloud for multiple applications.
  - Augmented an Azure Function app API to add more file operations and optimized it to decrease its runtime cost by 50%.
  - Created a migration utility for 5 applications to migrate 1M+ files for each app.
  - Retrofitted 5 custom .NET web applications to use Azure Storage for uploading attachments to improve disaster recovery.
  - Developed a client library to abstract using the attachments API for file operations for the ease of use by clients.
  - Automated Storage container deployment using PowerShell scripts and XML files to decrease hands-on deployment time to a click.
  - Created an Azure Function App to automatically process incoming diff files and update the differences on an Azure SQL DB.
  - Developed a paging API using Azure Function App to connect to an Azure SQL DB and retrieve rows for an Azure Web App client.
  - Designed a Power App used by 400 users that processes spreadsheets using OpenXML to change data connections automatically.
  - Developed and researched our first cloud app to implement APIS using Function App's and databases using Azure SQL DB.
- **Software Engineer Intern, Bridge Diagnostics** Jan. 2021 – Apr. 2021
  - Automated workflows using Azure tools and wrote backend programs for MS SQL for frontend use.
  - Used Power Automate Flows to parse CSV and XLSX files using Pandas to add their data to the corresponding MS SQL database.
  - Created a web scraping app using Selenium running on an Azure function to produce a list of unprocessed orders for our sales team.
  - Adjusted an automation flow to add an approval process from our VP sales team before processing an order request.
  - Developed an order management system using MS Forms and Lists used for internal supply chain management.
- **Software Engineer, Vena Vitals** Jul. 2020 – Apr. 2021
  - Collaborated on developing a Blood Pressure monitoring device.
  - Increased the update rate of a Python Desktop app used for graphing by a factor of 5 times by tuning the graph update method.
  - Added a BLE backend to an iOS app in Swift to connect to a custom PCB and retrieve data from it to be graphed in real time.
  - Amended nRF firmware in C using ARM Cortex-M4 architecture to support additional PCB sensors by multiplexing via I2C.

## PROJECTS

- **Embedded Systems Engineer – HyperXite at UCI** Jun. 2020 – Jun. 2021
  - Research and architect the embedded system and software of our pod for the SpaceX Hyperloop competition.
  - Researched and chose microcontrollers and sensors to control the pod for the FSM state transitioning.
  - Design the Finite State Machine that will operate the pod in a semi-autonomous state.
  - Develop a desktop application to display the current state of the pod with sensor readings and give control over the pod via a NAP.
- **Undergraduate Researcher | Software Engineer – CalPlug UCI** Jan. 2020 – Jun. 2021
  - Developed Application and Embedded Software under the CalPlug UCI Research Facility.
  - Extended the WiFiManager library for the ESP32 to save MQTT/WiFi credentials and handle automatic connections and failures.
  - Augmented and refactored a module that performs regressions to save the result in EEPROM and decreased its size by 10%.
- **Artificial Intelligence/Machine Learning**
  - Developed different artificial intelligence projects.
  - Created an SVM model using Sklearn to predict the Fashion MNIST data resulting in a test accuracy of 86.37% compared to the 87.6% of a ConvNN with 2 Conv+pooling.
  - Developed and implemented a CRF model using Python with an intuition tailored feature function to predict PM2.5 levels in 5 major cities in China with a performance of  $\pm 2\%$  compared to a CRF model with learned features using a single layer LSTM.

## EXTRACURRICULARS

- **Professional Development Events Planner** Dec. 2019 – Jun. 2021
  - Professional events planner for IEEE-Eta Kappa Nu.
  - Plan and facilitate professional events centered around career development for 50 students in our chapter.
- **UCI Engineering Conference Co-Chair** Feb. 2020
  - Volunteered to lead the Electrical Engineering and Computer Science subcommittee.
  - Guided and motivated twenty-four participants through their design report during the initial stages of the conference.
- **UCI Engineering Conference** Feb. 2019
  - Succeeded in leading a team to build a concept for a Sky Farm and won first place.
  - Created a concept from scratch for a self-sustainable vertical farm to increase farming's efficiency in three days.

## SKILLS

- Programming: Python, C/C++, C#, .NET, Java, Swift, MySQL | NumPy, SciPy, Matplotlib, PyQt5, CV2.
- Platforms: MacOS, Windows, Linux, Azure DevOps, Docker, Git, TFS, SSMS.
- Azure: Blob Storage, Azure Functions, Azure APIM, Azure AD, Azure Key Vault, Power Automate, Power apps, Power BI.
- Machine learning: CNN, Neural Networks, SVM's, Random Forests, XGBoost, CATBoost, LightGBM | Keras, Sklearn, Tensorflow.