

# MAZEN ALOTAIBI

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## EDUCATION

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**Oregon State University** *College of Elect. Eng. & Comp. Sci.*

Corvallis, OR (September, 2015 - June, 2019)

B.S. in Computer Science Applied in Artificial Intelligence, with Minor in Actuarial Science (GPA: 3.67/4.0).

**Relevant Courses:** Objected-Oriented Programming, Data Structures, Analysis of Algorithms, Databases, Computer Architecture and Assembly Language, Digital Logic Design, Theory of Computation, Computer Networks, Operating Systems, Artificial Intelligence, Software Engineering, Usability Engineering, Parallel Programming, Graph Theory, Machine Learning and Data Mining, Intelligent Robots, Programming Language Fundamentals, Discrete Mathematics, Linear Algebra, Probability, Statistics, Numerical Analysis, Mathematical Statistics, and Applied Stochastic Models.

## EXPERIENCE

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**Lead GPU Computational Researcher**

Corvallis, OR (November, 2018 - Present)

*Center for Genome Research and Biocomputing*

- Worked on **Tech Data AI Demo** which was featured in the **IBMThink2019 Conference**.
- Contributed to the development of multiple Deep Learning related projects including **Owl Sounds Classification** and **Plankton Classification**.
- Assisted fellow undergraduates in understanding the concepts and implementation of machine learning and deep learning systems.

**Lead Photographer**

Dhahran, Saudi Arabia (Summer 2012)

*Saudi Aramco Summer Program*

- Managed a team of 6 photographers to document summer program events.
- Hosted and organized multiple teaching photography sessions for **more than 70 inspired photographers**.

## TECHNICAL SKILLS

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**Data Analysis:** NumPy, OpenCV, PyTorch, Keras/TensorFlow, scikit-learn, and R.

**Web Development:** JavaScript, jQuery, PHP, React.js, Node.js, Flask, and NGINX.

**Programming Languages:** C/C++, Python, Java, Bash, MATLAB, OpenCL, OpenGL, and CUDA.

**Tools:** Git, SQL, NoSQL, ROS, and L<sup>A</sup>T<sub>E</sub>X.

**Languages:** Arabic (Native), English (Professional Proficiency), and Japanese (Elementary Proficiency).

## PROJECTS

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**Tech Data AI Demo**

November, 2018 - February, 2019

<http://aidemo.cgrb.oregonstate.edu/>

- Developed a website that races multiple hardware by running Deep Learning models developed by the CGRB lab, the project is sponsored by **Tech Data**, **IBM**, **NVIDIA**, and **OpenPower**, and the project was featured in **IBMThink2019 Conference**.
- Developed the website using **Bootstrap**, **JavaScript**, **Node.js**, **NGINX**, and **Bash**.

**Pedestrian Tracking and Privacy Preservation (*Senior Design Project*)**

October, 2018 - June, 2019

<https://github.com/PavementPrometheus/Street-Watch>

- Developed a computer vision system that detects pedestrians' faces to obfuscate them in real-time, then applies a tracking system to understand pedestrian and traffic behavior to increase the safety of the traffic for **the City of Portland**.
- Developed the detection system using **OpenCV** and **PyTorch**, the traffic system using **OpenCV** and **Keras/TensorFlow**, and the web API and application using **Flask**, **Node.js**, and **MongoDB**.

## Exploring Robot

November, 2018

<https://github.com/madebymaze/exploring-robot>

- Designed an exploration package utilizing the **gmapping** and **nav bundle** packages to allow a simulated robot to explore an unknown environment using **Python** and **ROS**.
- Designed an algorithm that generates waypoints to be followed and each waypoint is weighted based on a *Convolutional Filter* with some weighted conditions.

## Image Captioning

July, 2018 - August, 2018

<https://github.com/madebymaze/image-captioning>

- Built a **Convolutional Neural Network-Recurrent Neural Network** (CNN-RNN) model to automatically generate captions from images using **NumPy**, **OpenCV**, and **PyTorch**.
- Trained the Encoder[*CNN*] for feature extracting and trained the Decoder[**Long Short-Term Memory** (LSTM) cells in *RNN*] to generate captions.

## Facial Keypoints Detection

June, 2018 - July, 2018

<https://github.com/madebymaze/facial-keypoints-detection>

- Built a *CNN* model to predict Facial Keypoints using **NumPy**, **OpenCV**, and **PyTorch**.
- Trained the *CNN* model to detect faces and predicts **68 distinguishing keypoints** on that face.

## Self-Driving RC Car

May, 2018 - June, 2018

<https://github.com/OSUmlaclub/SelfDrivingRCCar/tree/mazen>

- Wrote a web app that streams a live-feed and a controller to control an RC Car's controller, **Raspberry Pi**, using **Node.js**, **JavaScript**, and **Python**.
- Built the structure of the intelligent agent and machine learning model.

## Image Classification

May, 2018

<https://github.com/madebymaze/image-classification>

- Wrote an **Multiple Layer Perceptron** (MLP) that classifies images using **NumPy** and **PyTorch**.
- Trained the *MLP* model using **CIFAR-10 dataset**.

## Aces Up Game

November, 2017 - December, 2017

<https://github.com/madebymaze/AcesUp.game>

- Wrote a web app with a team using **Java Ninja framework** for back-end, **JavaScript** for front-end, and **Heroku** and **GitHub** to host the web app.
- Won the **Best Web Application for Software Engineering I** (*CS-361*).

## Personal Website

December, 2016

<https://github.com/madebymaze/madebymaze.github.io>

- Wrote a personal website using **Node.js** for back-end and **JavaScript** for front-end.
- Wrote a **NGINX** script that directs HTTP requests to HTTPS and maps networks.

## A.I. Algorithm for a 2D Grid Game

April, 2016

<https://github.com/madebymaze/ai-2d-grid-game>

- Wrote a 2D grid game, *Hunt the Wumpus*, with a dynamic grid size using **C++**.
- Wrote an embedded intelligent agent to solve the game using *Probability Distribution Methods*.

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## EXTRACURRICULAR ACTIVITIES

## IBMThink2019 (*Conference*)

San Francisco, CA (February, 2019)

*Presenter at Tech Data Booth*

- Invited to **IBM Conference** by **Tech Data** to present Tech Data AI Demo to increase sales.
- Presented my work at the conference and I have connected with **more than 100 potential clients** who are interested to use the demo to increase their sales in different regions, such as Brazil, United Kingdom, and Japan.

## OSU Machine Learning/A.I. Club

Corvallis, OR (May, 2017 - Present)

*Vice President*

- Responsibilities are to present latest literature in to AI, ML, DL, and CV areas biweekly, host learning sessions to solve Kaggle competitions for new learners.
- Worked on building a Self-Driving RC Car, Kaggle Competitions, and a Breast Cancer project with the group members.

## PyImageConf2018 (*Conference*)

San Francisco, CA (August, 2018)

*Attendee*

- Attended a conference that focuses on advanced techniques in *Computer Vision* and *Deep Learning* research and their implementations to solve real world problems.
- Built a **Faster Regional-Convolution Neural Networks** (Faster R-CNN) from scratch to classify images with higher accuracy than well-known networks using **NumPy** and **PyTorch**.

## DesertHacks (*Hackathon*)

Phoenix, AZ (February, 2017)

*Participant*

- Worked with a team to build a web application that analysis a user's behavior from a list of previous behaviors based on *Markov Chain Methods* using **Node.js** and **Flask** for back-end, **JavaScript** for front-end, **Python** for data analysis, and **SQL** for data saving and pulling.
- Hosted the web application on **Amazon Web-Services** (AWS).

## App Club OSU

Corvallis, OR (Mar, 2016 - November, 2017)

*Active Member*

- Worked to build small projects using new tools with club members.
- Helped new members in explaining web development technologies and common practices in development.