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Karen Lissette Hernandez Mejia

EDUCATION

University of California, San Diego — *B.S. Electrical Engineering, Specialization in Machine Learning and Controls*

September 2019 - PRESENT, San Diego, California. Current GPA: 3.62

Accepted to pursue my Masters in Electrical Engineering, emphasis in Machine Learning and Data Science - at University of California, San Diego.

Courses will be taken in conjunction with Bachelor's courses, until December 2022, when Bachelor's is completed. Full-time Master's student starting January 2022

San Diego Mesa/Miramar College — *Undergraduate transfer program*

August 2018 - June 2019, San Diego, California. GPA: 4.00

Santa Barbara City College — *Undergraduate transfer program*

August 2015 - May 2018, Santa Barbara, California. GPA: 3.43

Dos Pueblos High School — *High School Diploma*

June 2015, Goleta, California. GPA: 3.88

SKILLS

- C/C++
- MATLAB
- Python, including but not limited to:
    - Keras/Tensorflow
    - PyTorch
    - Numpy
    - Pandas
    - Matplotlib
    - Scikit-learn
    - SciPy
    - OpenCV
- Deep Learning
- ROS (Robot Ignite Academy)
- Jupyter Notebooks
- Linux
- Powershell
- Docker
- Solidworks
- AUTOCAD, Fusion360
- PSpice and ORCAD
- Verilog
- Arduino
- Circuit Analysis
- 3D Printing
- Laser cutting
- Soldering
- Bilingual (Fluent in Spanish and English)
- Communication
- Team collaboration
- Adaptability
- Critical thinking
- Self-management

EXPERIENCE

Machine Learning Projects

October 2020 - Present

Current Project:

Designed, fast-prototyped and built a miniature car, configured and programmed JetsonNano that will be used to collect data on a miniature track available at the University of California, San Diego. This data will be used to train different machine learning models in a GPU accelerator with the goal of driving autonomously at a known track. ROS will also be implemented in order to make another version of the autonomous car. The goal is to compare their performances during a competition taking place in June 2021.

Past Projects:

Image Processing:

- Implementation in python(numpy only) of the following methods from scratch:

- Histograms & Adaptive Histogram Equalization
- Mean, Median, smoothing, sobel operators, non-maximum suppression filters
- Canny edge detector
- Hough Transforms
- Object detection through template matching

Machine Learning:

- Create, train, test, analyze and improve a model for image colorization tasks using the CIFAR Dataset.
- Programmed in Python using PyTorch and Jupyter Notebooks.

Implemented from the following algorithms for image classification tasks, using Python Programming and Jupyter Notebooks. No Tensorflow or PyTorch used for the following tasks, just Numpy.

- K-Nearest Neighbor
- Least Squares Regression
- Linear Regression
- Simple Neural Network

Using PyTorch or Tensorflow:

- Neural Network Models: 2-layer, 3-layer, ResNet, AlexNet

Semantic Segmentation: using CMP Facade DataBase implementing a fully convolutional network FCN-32s and FCN-8s with skip connection architecture.

Machine Learning Research Internship — *Venator Solutions*

June 2020 - October 2020

- Simulate data - classified images using Python programming
- Image processing
- Create Docker Containers with required data
- Keras/Tensorflow based projects in Jupyter Notebooks, both in CPU and GPU-nvidia
- Created Neural Network algorithms for image classification tasks, using Keras/Tensorflow. Including but not limited to ResNet and DenseNet
- Compared performance of different algorithms, analyze architectures

Electrical Engineering Project Class — *UCSD*

- Circuit theory, assembly and testing.
- Embedded systems programming and debugging
- Transducer mechanisms and interfacing transducers
- Signals and systems theory
- Digital signal processing
- Modular design techniques
- PCB Designs
- MATLAB projects
- Solidworks designs
- Built arduino based projects such as: Audio Amplifier, line follower servo motor car
- PID Control
- Embedded Linux
- Computer Vision and OpenCV
- Fast Prototyping
- Team work & team dynamic while working remotely

AWARDS

- President's Honor Roll (3 semesters at Santa Barbara City College)
- Community Service Award (200+ hours of community service in High School)