Daniel Cruz

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Education

The University of Texas at El Paso (UTEP)
Master of Science in Computer Science (MSCS)   Fall 2022
El Paso, TX   **Major GPA 4.0/4.0**

The University of Texas at El Paso (UTEP)
Bachelor of Science in Electrical Engineering (BSEE)   Fall 2019
El Paso, TX   **Major GPA 4.0/4.0**

Honors/Affiliates

UTEP System Ecology Lab (2019-2024)
Vision and Learning Lab (2021-2023)
NOAA EPP/MSI Earth System Sciences and
Remote Sensing Scholar (2021-2022)
Upsilon Pi Epsilon (2021)
National GEM Consortium Fellow (2020-2022)

Arctic Domain Awareness Center Fellow (2019)
UTEP Netlab (2018-2019)
Tau Beta Pi (2016)
Dean's List (2015-2023)

Experience

Windy Network – Machine Learning Systems Engineer *Shizuoka, Japan* (June 2024-Present)

- Developed machine learning object detection model to detect animals in thermal drone images.
- Designed a data pipeline to collect, process, and label data for training a machine learning model.
- Developed algorithm to avoid double counting the same object in overlapping images.
- Achieved an mAP of 0.97.

System Ecology Lab – Research Associate *UTEP* (August 2019-April 2024)

- Developed single-board portable computer system to communicate, update, and extract data stored on remote sensors through Wi-Fi and ethernet. (submitted for patent review)
- Written in python, C and bash script using Linux subsystems.
- Designed 65x56 mm circuit board containing power control and network switch using Eagle.
- Developed machine learning program to classify ecological image data using Tensorflow.
    - Sorted 4,000 images with 98% accuracy, applied to sort 2 years of mislabeled data.
- Wrote and tested C and Python scripts on Linux based camera systems designed to record long term phenology.

Woods Hole Oceanographic Institution – Sensor Software Engineer/Machine Learning Data Scientist Internship *Woods Hole, Massachusetts* (June 2022-August 2022)

- Sponsored by NOAA CESSRST Earth Systems Science Fellowship to develop sensor software for autonomous underwater vehicles.
- Developed computer vision program to quantify and measure oil droplets in holographic images.
- Developed machine learning model to quantify and measure oil droplets with a 98.6% reduction in processing time.

Oak Ridge National Laboratory – Machine Learning Data Scientist Internship *Oak Ridge, Tennessee* (June 2021-August 2021)

- Sponsored by Oak Ridge National Labs and GEM Fellowship.
- Developed Tensorflow machine learning model to predict cyberattacks on a digital-physical system with 98% accuracy.
- Developed machine learning model to predict digital instruction of a digital-physical system based on electric current readings.

Arctic Domain Awareness Center – Electrical Engineer Internship *Anchorage, Alaska* (February 2019-2020)

- Sponsored by Arctic Domain Awareness Center as part of the Arctic Summer Internship Program.
- Assisted in the Development of Remote Sensing Systems for Recording Ecological Data.
- Camera systems set up in Jornada Experimental Range in Las Cruces, New Mexico and northern Alaska.

Skills

- Proficient in:
    - C and C++
    - Microprocessor programming
    - Python
    - Linux
    - Machine learning modeling using Tensorflow
    - Data manipulation using Pandas Python Module
    - OpenCV Python Module
    - Array data manipulation using Numpy Python Module
    - Data Visualization using Matplotlib Python Module
    - Git
- Intermediate knowledge in:
    - PCB design software eagle
    - Machine learning modeling using Pytorch
    - Soldering
- Familiar with:
    - Multisim
    - HTML
    - Javascript
    - MATLAB

Publications

- "Bluetooth Enabled Smartphone Application For Wireless Photoplethysmography Monitoring Devices", 34th Annual Southern Biomedical Engineering Conference. Daniel Cruz, Michelle Patiño, Michael Mikhael, Mohammad Ghamari, Homer Nazeran
- "Oil Particle Analysis Using Machine Learning and Holography Imaging", University of Texas at El Paso Thesis Paper. Daniel Cruz, Olac Fuentes, Craig Tweedie, Diego Aguirre

Languages

- Native English
- NAT-Test Q2 (JLTP N2 Equivalent) Japanese Certification