Nikolas Koutsoubis

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Education:

University of South Florida

- Ph.D Electrical Engineering : Start August 2023

Rowan University Glassboro NJ

- Master of Science Electrical & Computer Engineering: June 2023
- Bachelor of Science Electrical & Computer Engineering: December 2021
- Minor in Physics: December 2021
- Master's GPA 3.925: Undergraduate GPA 3.401

Work/Experience/Research:

Turret Gunner Survivability Simulation Environment (TGSSE) AI developer.

- Primary AI developer for US army DEVCOM funded project at Rowan University.
- Implemented state of the art computer vision models to detect aerial objects including the You Only Look Once (YOLO) object detector in Pytorch.
- Implemented a cost function to better optimize the neural network for small object detection.
- Collaborate with various other fields including virtual reality, edge computing, graphic designers, and psychologists to develop a set of tools to improve the survivability and lethality of army turret gunners.
- Constructed a benchmark dataset for drone detection.

Machine learning for helipad detection for the Federal Aviation Administration.

- Utilized computer vision to identify helipads from satellite images.
- Increased FAAs helipad dataset size by ~50% by leveraging Google web services.
- Web app design implementation of machine learning application.

Developing artificial intelligence with deep learning algorithms in python.

- Designed algorithm to detect lung cancer in cat scan and MRI images.
- Identified irregularities in breathing using convolutional neural networks.
- Worked alongside biomedical engineers in developing a lung cancer detection system using machine learning on genomic sequences and deep learning on cat scan images.
- Detected bone marrow deficiencies using instance segmentation.

Server at Chickie's and Pete's Glassboro

- Interface with customers, understand needs and provide good service.
- Understand how to work under pressure.

Publications:

- Garrett Williams, George D. Lecakes Jr., Amanda Almon, **Nikolas Koutsoubis**, Kyle Naddeo, Thomas Kiel, Gregory Ditzler, Nidhal C. Bouaynaya, "DyViR: dynamic virtual reality dataset for aerial threat object detection," Proc. SPIE 12529, Synthetic Data for Artificial Intelligence and Machine Learning: Tools, Techniques, and Applications, 125290G (13 June 2023); https://doi.org/10.1117/12.2663417

- Boosting Aerial Threat Detection Performance Via Virtual Reality Data and Multi-Object Training. (IJCNN) approved waiting for final publication.

Programming Languages/Relevant Coursework /Certificates:

- NVIDIA DLI fundamentals of deep learning certificate
    - ID number: 74510dc55a7143dfb4b82e81e9ef1198
    - Served as a teaching assistant for the course.
- Python
    - Pytorch
    - Computer Vision
    - Tensorflow+Keras
    - Pandas
    - Numpy
- Quantum Mechanics
- Linear Algebra & Matrix Theory (Graduate)
- Machine Learning (Graduate)
- Reinforcement Learning (Graduate)

Leadership: Treasurer, Rowan mixed martial arts club.