Andrew J. Plesniak

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EDUCATION

Carnegie Mellon University, Pittsburgh, PA *December 2020*
Master of Science in Electrical and Computer Engineering [GPA: 4.0/4]
Specialized Coursework: Artificial Intelligence, Deep Learning, Computer Vision, Software Engineering

University of Pittsburgh, Pittsburgh, PA *May 2019*
Bachelor of Science in Mechanical Engineering [*summa cum laude;* GPA: 3.9/4]
Specialized Coursework: Cyber-Physical Systems (IoT), Embedded System Design, Robotic Control

TECHNICAL SKILLS

Programming Languages: Python, Java, C++, C, PHP, MATLAB
Software Engineering Tools: Git, Jira, Amazon Web Services, general cloud computing, Linux, hypervisors, virtual machines
Additional: PyTorch, OpenCV, MySQL, HTML, CSS, CAD/CAM, CNC machining, electronics

PROFESSIONAL EXPERIENCE

Software Engineering Intern, *Honeywell (Aerospace - SATCOM), Phoenix, AZ* *May 2019 -- August 2019*

- Led development of a core feature on a cyber-security critical product exceeding timeline predictions
- Engineered a new hypervisor software stack increasing isolation via virtual machines
- Designed and implemented software and network architecture eliminating potential cyber vulnerabilities
- Utilized an Agile DevOps methodology to deliver software features and innovation at a high velocity

Research Assistant, *Mascaro Center for Sustainable Innovation, Pittsburgh, PA* *January 2016 -- May 2019*

- Drove development of a machine learning based smart heart stent for emergency military use
- Devised a neural network approach to predicting spatial radiation signatures of ultra-high frequency antennas
- Created custom ultra-high frequency antenna designs and flexible printed circuit boards (PCBs)
- Headed project assessing new inertial measurement unit (IMU) technology for tracking real time motion

Embedded Systems Engineering Intern, *Eaton Corporation, Pittsburgh, PA* *May 2017 -- August 2017*; *May 2018 -- August 2018*

- Automated testing procedures using Python drastically improving testing efficiency and accuracy
- Programmed, wired, and networked automatic switching controls for Amazon and Equinix datacenters
- Coded an application and user interface improving the usability of a laser engraver used to generate labels

ACADEMIC PROJECTS

Human-Like Robotic Painting Using Generative Machine Learning *(Carnegie Mellon University)* *September 2019 -- Current*

- Created a data set using a motion capture system to record the paint strokes of a human artist
- Developed a robotic workflow which painted a GAN generated face with an ABB 6-axis robotic arm
- Attempting to train a generative algorithm for the robot to learn the stylistic techniques of the human artist

Efficient Instance Segmentation for Autonomous Vehicles *(Carnegie Mellon University)* *September 2019 -- December 2019*

- Evaluated Mask-RCNN using ResNet-50 with a feature pyramid network as the baseline backbone network
- Tested MobileNetV3 and EfficientNet as more efficient backbone alternatives in the Mask-RCNN architecture
- Reduced model parameters by over 7x and increased inference speed by 20% while retaining similar accuracy

Facial Identification Based Smart Door *(University of Pittsburgh)* *January 2019 -- May 2019*

- Built a Raspberry Pi enabled smart door prototype that unlocks for authorized users using facial identification
- Optimized a Haar-Cascade, Neural Network, and Support Vector Machine approach for a low power system

Conceptualization of a Computer Vision Target Identification Tool *(University of Pittsburgh)* *January 2019 -- May 2019*
Sponsored by the Marine Corps Forces Special Operations Command (MARSOC)

- Proposed and developed the concept of a "google searchable video" tool for drone footage target identification
- Iteratively evaluated design, feasibility, and profitability by interviewing ~100 military and industry experts

LEADERSHIP

University of Pittsburgh Cheer Team, *Captain* *May 2016 -- May 2019*
NCAA Student-Athlete Advisory Committee, *Elected Representative* *September 2017 -- May 2019*
Engineering Student Council, *Member* *September 2015 -- May 2019*