Arsenio Menendez
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[PHONE NUMBER HERE]

Electrical Engineering student/professional engineer skilled in multidisciplinary solution engineering with primary focus on government and defense.

➤ Electronics test/troubleshoot experience
➤ Low TRL rapid prototyping
➤ Applied hyperspectral imaging experience
➤ Thorough familiarity with industry test equipment
➤ Integration of disparate mechanical systems
➤ Circuit design/layout (4+ layers), high speed, HDI
➤ MASINT on captured enemy systems (FME)
➤ Deployed to active war zone for in-situ analysis
➤ IMINT analysis of electronic systems
➤ Live Foreign Material Exploitation

SSAI/NASA Goddard - *Associate Systems Engineer*   (Sept 2018- Current)
* Environmental testing and calibration of sensors in thermal chambers and cleanrooms as test director.
* Primary design engineer on a 4G LTE connected data bridge for instruments running Linux - included adapting to unexpected circumstances and hardware shortages during pandemic and silicon shortage.
    * Design of board included pivot from OSD3358 SIP to IMX6ULZ CPU/DDR3 layout for lower power usage and cost
    * Maintained active development of support software and hardware on GitHub version control
* Successfully calibrated and maintained a global fleet of more than 500 instruments including intake testing and tracking of individual units through service life.
* Designed locally manufacturable cost-effective replacement for rain sensor consumable.
* Mentored High School Intern attached to LANDSAT program in LWIR imaging procedures and data product generation
* Developing customized heated wet sensor controllers to reduce morning condensation induced data loss
* Mentored USNA intern during a 6-week internship on loan from USNA in electrical engineering, culminating in his designing and production of a custom PCB with software to prevent condensation on rain droplet detector.

Conflict Armament Research - *Consultant Electronics SME*   (Sept 2022-Mar 2023)
* Analyzed extensive imagery obtained by field teams of captured Russian and Iranian weapon systems.
* Deployed to Kyiv, Ukraine in January 2023 to support exploitation and exploration of hardware in-theater.
* [Briefed Prosecutor General of Ukraine](Andriy Kostin) on findings and next steps alongside EUDEL to UA.
* Briefed US Political Military Attaché, Industry and US Commerce Attaché at US Embassy Kyiv with focus on components of concern observed in captured samples and likely alternatives if primaries are made unavailable.
* Authored in-depth analysis on Shahed 131 and 136 electronics with a primary focus on the GNSS and IMU variations between samples provided by national partners to ascertain evolution and tactical CEP of the system.
* Extracted firmware samples from Shahed 131, Shahed 136, KH-101, Orlan-30, KA-52, Luch Korsar and 9A-7755
* Identified and interrogated IMUs with obliterated markings to obtain serial numbers for supply chain and diversion counter to sanctions controls for chain of custody tracing.
* Developed tooling and equipment baselines to prepare future teams and national partners to have packable capabilities for downrange employment

University of Maryland/NASA Goddard - *Student Researcher*   (Sept 2016-Sept 2018)
* Worked extensively with the Sun staring CH4/CO2 measurement Mini-LHR instrument during full life cycle through development, assembly, testing and deployment into tech transfer to industry.
* Spearheaded development of a novel compact and cost-effective ≈0.1° sun tracking altitude/azimuth robot *LCIST* (Low Cost Imaging Solar Tracker) as an upgrade to existing but less field operation deployable and man packable systems based around GPS time solar position solving and PXI PAJ7025 MOT(Multi Object Tracker) for fine track.
* Redesigned entire mechanical portion of LCIST and turned around manufactured components into complete units to make deployment window in 4 weeks after severe issues were noted in field testing.
* Modified terrestrially proven Mini-LHR hardware into a smaller spacecraft variant for the Mini-CARB program and successfully handed off instrument to LLNL before it was launched into space in December 2019.
* Mentored interns to train on MCAD and ECAD basics to assist in development of the sun tracking turrets and Mini-LHR instrument,
* Deployed to Arizona to train an away team bound for field operations in the Amazon Rainforest at ASU on the instrument operations before a science field campaign.

Training/Skills
Certifications:
    * Laser operator, cryogenics, oxygen deficiency, ESD safety, Amateur radio technician (KN4OIH), HEFAT, UXO hazard awareness, NAR High Power rocketry Level 1, CVN-71 Tailhooker.

Skills:
    * Mechanical: MCAD(SolidWorks, Inventor, Fusion), Design for CNC manufacture, Machine tools
    * Electrical: ECAD(Eagle, KiCad, Altium), Micro soldering, BGA design, Industry standard test equipment
    * Languages: C++, C, Python, MATLAB
    * Software: NSA Ghidra, Altair FEKO
    * Production: Davinci Resolve, Photoshop, Ligthroom, Powerpoint, Word, Excel

Personal Projects:
    * Active aircraft and rocket tracking turret using EO/IR cameras including CZ varifocal IR.
    * Extensive LWIR thermal core refurbishment for hobby purposes
    * Integration of Raytheon LWIR system as a NAVFLIR into off-road vehicle
    * Hardened home network for increased cybersecurity
    * Maintain small servers on home network for data storage and microservices
    * NDI in support of reverse engineering 1970's era defense articles
    * Re-activating an AN/APQ-153 fighter radar
    * Reverse engineering both 9K32M and AIM-9J missiles
    * High performance encrypted telemetry downlink of data gathered onboard high-power supersonic rocket
    * Re-engineering desktop explainer model of AIM-9 signal path for use as a museum exhibit
    * 5KM Nd:YAG 1064nm combination PRF/LRF designator/rangefinder under development
    * Designing a custom LWIR thermal core built around Amorphous Silicon detector operating at 50Hz
    * Hyperspectral goggles UV-LWIR with switchable filters

Publications and Conferences
* Wilson, E.L., DiGregorio, A.J., Villanueva, G. *et al. "A portable miniaturized laser heterodyne radiometer (mini-LHR) for remote measurements of column CH4 and CO2." Appl. Phys. B* 125, 211 (2019).
* Wilson, E.L., DiGregorio, A.J., Villanueva, G. *et al. "Portable, low-cost, column carbon dioxide and methane measurements for validating satellite observations in remote locations"* AGU Fall meeting (2018) *A31L*
* Thomas F. Eck, Brent N. Holben, et al. "The extreme forest fires in California/Oregon in 2020: Aerosol optical and physical properties and comparisons of aged versus fresh smoke"
* *"Open-source intelligence challenges state monopolies on information" Economist, The (August 7, 2021)*
    * News coverage of work done collaboratively on geolocating IR665 shootdown video.

Education
* Northern Virginia Community College (2015 – 2015)
* Germanna Community College (2017 – current)
    * Deans list 2019