Jason Edward Sanchez

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United States Citizen || Bilingual || SkillsUSA competitor || **NASA** Intern Alumni || Formula Society of Automotive Engineers [**FSAE**] || https://www.linkedin.com/in/jason-e-sanchez/

Education

➢ Associates of Science: *Electrical Engineering*   2021
➢ Associates of Science: *Cybersecurity*   2025

Experience

1. National Aeronautics & Space Administration | Apprenticeships/Training   **[2018-2021]**

- **Langley Research Center -** D320 System Wide Safety Division   **2021**
  - o Researched Battery Characterization for various Lithium Batteries for use in Aerospace / Aviation
  - o Assisted Engineers with Matlab , Visual Studio Code , Cygwin , Lithium Battery Degradation
- **L'Space Academy** - Electrical Assembly of Prototype Cubesats at ASU   **2021**
  - o Wire Management / Soldering / Assembly / Testing [AMG8833,ItsyBitsy Express,E-Motors]
- "**NASA SUITS**" - Hololens 2 - Software Developer & UX/UI Designer   **2020-2021**
  - o Developing Augmented Reality on Hololens 2 for Lunar exploration.
    - ▪ Tested various Lunar environments for Unity and Unreal Engine [PSR]
  - o Created and designed spacesuit modifications/data points to feed into Unity/Visual Studio
    - ▪ Integrated Hololens 2 attachment points onto Visor for Lighting and Hardhat
  - o Created and Modified 3D environments using Unity and Unreal Engine
    - ▪ User Interface creation + Modification in C# / Unity
- **L'Space Academy** - Artemis NPWEE Team Leader, 'Phase A' Funding and Recognition   **2020-2021**
- **Wallops Island Flight Facility**: Research & Technical Work   **2019-2021**
  Ground Validation Data Recovery & on-prem technician work
  - o **Global Precipitation Mission**: [**GPM**] Ground Validation Team Member
    - ▪ Trained on Disdrometer systems for extraction and uploading into field laptop/server
    - ▪ Provided field disdrometer systems maintenance, trained in Safety, Maintenance, Electricity, Batteries, and other operations.
    - ▪ Worked on Disdrometers [Radar, Ground, Data, RF], extracted data to compare to JAXA.
  - o **AREN**: Education Outreach and Photogrammetry Data Capture

2. Washington DC: Security Analyst Contractor   **[2016–2018]**

- **NSL** - Cyber Security Junior Analyst - Full Time 1st/2nd/3rd shift rotations
  - o Wrote reports in real time on each unique threat and provided blocklist recommendations
  - o Created After-Action reports on any/all malware that was triggered within the SOC.
  - o Trained in Junior Cybersecurity operations and use of analysis software for threats.

3. National Aeronautics and Space Administration **[Public Trust]**   **[2015–2016]**

- **Wallops Island Flight Facility** – Guest Researcher
  - o Detecting *P. Australis* with UAV Remote Sensing and composite images with ArcGIS software. Provided basic research data and processed Near Infrared [NIR] photography.

- **Langley Research Center** - Aeronautics Research Directorate
  - o Magnetic Hovercraft [Hendo Hover Whitebox testing], UAS Testing (Custom platforms & , Vibration Testing Flight Controls, Delta / 3D Printers.
  - o Worked with Analog/Digital parts - accelerometers, gyroscopes, FCU, RF controllers, data analysis.
  - o Worked with XBee radios with basic encryption data [128 AES] and sent secure data via various analog RF signals
  - o Trained and used various classical analog hardware, Arduino breakout boards, XCTU, and RF software.

4. **K-Foundation - SUAS Pilot / Drone Flight Trainer**   **[2015-2016]**
   - Lectured students and parents during the Drone Building Workshop days
   - Creating & soldering circuitry for 11.1 volt drone motors with 5 volt BEC + ESC + Flight Controller unit
   - Managed, Programmed, Tutored Autonomously Generated Flights Paths during Flight day
     - o Tutored/Worked at Microsoft Store - Foxcroft School - The Potomac School

5. **NVCC – Physics Lab Assistant / Engineering Lab Assistant**   **[2014-2015]**
   - Provided tutoring, 3D Printing service/maintenance, taught entry level programs on Rasp Pi / FPGA
   - Maintenance: Stratasys, Makerbot, Delta (Rumba ECU) & custom 3D Printers for Students & Faculty [Art Department / Engineering Department]

Courses

Computer Science / Technology:

Advanced Database Management, Computer Programming for Engineers, Intro to Computing, Intro to Telecommunications, Intro to Information Systems, Intro to Computer Applications & Concepts, JAVA Programming I, Multimedia Software, PC Hardware and O/S Architecture, Software Design

Math:

Algebra I, Algebra II, Geometry, Precalculus with Trigonometry, Analytical Calculus I, Analytical Calculus II, Calculus III (Vector), Linear Algebra, Applied Calculus I

Science / Physics:

General Biology I, General Biology II, Physiology & Anatomy I, Physiology & Anatomy II, Chemistry I , University Physics I, University Physics II, Thermodynamics

Engineering:

Digital Electrical / Logic Design , Electric Circuits I , Electric Circuits II , Electric Circuits Lab I + II , Engineering Design , Engineering Graphics , Intro to Engineering , Statics and Strength of Materials for

Engineers, Systems Engineering [SATERN], Drone Pilot Remote Photogrammetry/Training [VT], Systems Engineering [SATERN **:** Human Factors, Applied Systems, Design]

English / History / Language

College Composition I, College Composition II, History of Western Civilization, Survey of American Literature I (Honors), Spanish I, Spanish II , Sociology I, Sociology II, Speech Communications

Skills Summary - NASA / Federal Certificates || Work / Personal Experience

Computers: OS & Overall [User / Enterprise Software + Equipment] 110+ WPM

Linux:	[Mint, Pearl, Ubuntu, Kali, Arch, Raspbian, BeagleBone, TinkerOS]
Windows:	[95, 97, ME, XP, VISTA, 7, 8, 10]
Macintosh:	[2005-2018]
Networks:	[Wiring (Cat 5 / 5e / 6 / 7), Routers, Switches, Repeaters] Recovery & Backups, Servers, Encrypted Software, Encrypted Hardware, Thumb Drives, Virtual Desktop

Software:

3D Modeling:	CAD, [Fusion 360, CatalystEX, Slicer [3D Printing / CNC]]
Programming:	C#, C++, Python, Visual Studio, Matlab, Labview, Unity [VR / XR], Unreal Engine, Machine Learning, SciPy.
Media & Misc:	LaTeX, Microsoft Office [Word, Excel, Powerpoint], 3D Slicer, Mac OSX, Virtual Drivers / Emulators, Object Oriented Paradigm, FL Studio, Illustrator, Photoshop, Sony Vegas, Microsoft X Plane, DRL Flight Simulator Trainers.

Hardware: [Technical]

Assembly:	ATX / mATX computers, Server racks, installing **[** Ram, GPU, Motherboard, PCI-E Extensions, CPU, Cooling (Air/Liquid), Field-Portable Cooling Systems**,** APU [Mechatronics Systems; Land & Aerial Drones], Protoboards, Battery Degradation
Cameras:	Sony A6000, GoPro (2,3,4,5) & custom variants, Kodak, FLIR [Lepton/ Enterprise]
Electrical:	Multimeter, Oscilloscope **[**Mixed Signal, Analog, Digital**]** USB data exports & reports
Wire/Solder:	AC Power Extensions, Crimping, Switches, Cables, Hakko, Weller, Cable Harness, Wire Twisting, Molex Connectors, JST Connectors, Dean connectors, Triple-phase [Electric motors up to 72 Volts @ ~150 amps], Terminal Crimping [4 AWG - 28 AWG], simulator environment, crimping, window stripping, soldering, security camera system setup
Manufacturing:	[*Maintenance, Repairs, Competition Experience*]
Additive:	3D Printing [X/Y/Z and Delta Style], Stratasys [U Print SE, SE Plus], Makerbot [1 / 2], SeeMeCNC, RepRap, Prusa i3, Mark Forged [PLA/ABS, Steel, Carbon Fiber], FDM Printer [Raised Powder Bed - Compounds/Resins]
Subtractive:	Drill Press, Bandsaw, Extraction, Dremel, [Welding/Cutting: Oxy Acetylene]
Prototyping:	Arduino, Raspberry Pi **[** 2 , 3B+ , 4B+**]**, Tinkerboard ASUS, Beaglebone Black/Industrial [entry], Drone Flight Controllers [Arduino] , CRIUS WiiU Flight Controllers

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Personal:	Fast-Learner, Risk-Averse, Safety Conscious, Team Player, Professional, Interpersonal Skills, Competent, Disciplined, Multi-Tasker, Assertive, Attention to Detail, Timelines, Time Management, Climber/Outdoors, Pioneer, Initiative, Integrity, Work Ethic, Autonomous, Flexibility, Adaptable to Environment, Problem Solver, Grace under Pressure, capable of working in extreme environments/situations

Training:	[Certificates / Training || NESC, On-the-job, On-Prem**]**
Safety:	Risk Assessment, Battery Safety [SLA/LiPo/Lithium/LiFE/LiMNO$_4$], Biosafety, Confined Space, CPR/AED training, Cryogenic Safety, Electrical Safety, Electrical Awareness Training, ESD Control, Electrostatic Discharge & Safety, OSHA Safety Coursework, Intro to Radiation Safety, Radiation Hazards Safety, Radiation: Effects on Electronics/Systems, Systems Safety Training, Safety & Materials for use in O$_2$ Systems, SUAS Maintenance & Safety
Testing:	3D Optical Profiler, SEM - Scanning Electron Microscope [Pressurized Environment], Atomic Force Microscopy, Basics in Particle Counting [Micro/Nano], Cleanliness & Contamination Control, Control of Foreign Object Debris, Corrosion Control, Reliability & Maintainability
Other:	Analysis, Insider Threat Training, Forklift, Straddle-Stacker, SCBA [Firefighter], Class I/II/III Harness Use/Safety, Paramedic / EMS training, Firefighter training, Investigation & Mishaps Reporting, Security Awareness

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Educational Activities: 2011 - Present

2021	**CWRU:** NASA Break the Ice Lunar Challenge - Multi University Collaboration [NVCC / GMU / CWRU / ERAU / NJIT]
2020-2021	**University of Puerto Rico Mayaguez:** NASA SUITS Competition [Finalists]
2019	**NVCC:** STEM Poster Board competition - 2nd place using 3D printed - Robotics & Drones
2018	**Virginia Tech:** Engineering representative for Virginia Tech

Assisted ESPN film crew at Drone Cage on campus, video later displayed/used in a commercial for the Oct 25, 2018 game against Georgia Tech for Drone Racing League and showcased research drones the student team created

- ❏ Piloted primary research aircraft used in Unmanned Systems and CMS Labs
- ❏ Assisted in testing and application of Autonomous recovery systems
- ❏ Provided feedback on ATAK mapping and Friend/Foe identification
    - ❏ [CMS LABS; D.Jensen / J.Sanchez]

2015-2018	**NVCC:** Educational Multirotor Assistant Teacher & Engineering Department Technician at NVCC Manassas Campus, IEEE Member, SACNAS Member [Significant Advancement of Chicanos and Native Americans in Science]
2014-2016:	**NVCC:** Nanotechnology Elemental Analysis & 100,000x Student Nano-Research Team [Leader: Officer	Work: SEM	Advisor: Dr. Tetteh Addy]

- ❏ *Lead Student Researcher*: Documentation, Contributor, Writer. Photography: ~50-60 Samples @25,000x to 50,000x zoom @1080x multi-image resolution per week
- ❏ Graphene Elemental Analysis & Landscape Documentation: Grant Proposal, Memorandum of Understanding (MOA)& NDA Writer **[** Physics Research *2015-2016***]** – Equipment Used: *Scanning Electron Microscope, 3D Optical Profiler, Atomic Force Microscopy, Microsoft ICE (image stitching)*

2014-2016:   **NVCC**: Student STEM Labs Founder/President – NVCC Manassas - Student Engineering Society & STEM Club

2014-2015:   **NVCC**: Student Leader of the "NOVA-Manassas Global Learning Center Advisory Board"

University Projects/Works

2022-2023   **George Mason University**

   Formula SAE - University Racing League - Electronics, Dashboard using FPGA.

   GLEE - **Team 2005 - Payload to Lunar Crater** in 2024 "**CSGC**" Mission 2022-2024

2017-2019   **Virginia Tech**: Collaborative Research - Computational Multiphysics Systems Lab (Mechatronics - CMS Lab) [validated by Lab Manager]

   NVCC: STEM Labs Undergraduate Project Advisor

2016-2018   *NVCC*: Desertification & Agricultural UAS - VCCS / NVCC:

   Agricultural Solutions & Proposals: Ghana - Accra - Proposal created for the observation of Desertification of local region & DVI / Heat mapping of local farms. Sanchez, Jason - Project Lead / Engineer - Dr. Tetteh Addy

2014-2015   *NOVA Labs* - Aircraft Project [Flight Simulator, Single Seater Aircraft Construction]

   Smyth Sidewinder: **Flight Simulator Conversion** - *Used at Reston MakerFaire & NVCC*

    Learned: Installing cockpit, controllers, rudder, throttle and cable harness / cable extensions. Simulator environment, Set up software in Linux Environment - Later updated environment to Win 10 OS & HD [4K] maps

2013   *NOVA Labs* - HAARP [Rocketry]:

   Participated as a volunteer member of the High Altitude Adjusting Rocketry Team at NOVA Labs. 3D Printed / CNC Metal / Wooden Frames

    Learned: Rocketry launch procedures, placement/usage of P54 and various model rocket motors, framework, & simple wiring for altimeter [PNUT / Rasp Pi / Arduino]

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Special Interest

Robotics:
- NVCC Officer - VEXU Robotics
  - "Worlds" Design Award winner at Anaheim, California - 2014 [**NOVA1**]
    - Creator of #1 world engineering design notebook @ University level VEXU
    - Ranked World Competition Winners [Creator of the Engineering Notebook]
  - Competed against 25+ International Teams [China/Mexico/Germany/South America/UAE] and 60+ USA teams

Awards:

NASA Aerospace Scholar	NCAS Robotics Challenge
NASA STEM Takes Flight	NVCC Seal Award [2015-2016]
NVCC Community Award [2014-2016]	Dean's List [2009, 2012, 2015, 2016]
VEXU Robotics - Design Award - #1	

Activities:

Construction / Firefighter / Hardscaping / Landscaping [2004-2011], Robotics World Champion Engineering Design Award 2014, Merchant Marine Academy [2001-2002 Summer], Westpoint [2003 Summer], sUAS/UAV SME at Virginia Tech: [Engineering Senior Design Project & 'Drone Cage' guest pilot]

Presentations:

2014: NVCC Nighthawks: "**UAS Aviation Alternatives for custom GPS mapping and Forestry**"
2014: NVCC Nighthawks: **"Importance of 3D Printing and Additive Manufacturing"**
2015: Langley Research Center: Aeronautics Research Directorate - **"Sensors and Drones - Failure Modes"**
2015: NVCC Nighthawks: **"Summer Aviation Camp - Lead Drone Instructor Week"**
2016: Wallops Island Research: **"Aviation and ArcGIS photogrammetry"**
2018: Wallops Island Research: **"Atmospheric Monitoring and GPS"**
2018: Virginia Tech: ESPN Drone Racing - **"Drone development for A.I. Tracking"**
2020: NASA L'Space: Proposal Academy
        1) Glenn Research Center:
            a) "**New parameters and hardness factors in regards to Game-Changing Material(s) on the Artemis Program for Astronauts**."
        2) Marshall Space Flight Center:
            a) **"Usage of Tribology and high level measurements for Artemis xEMU"**
2021: Langley Research Center: D320-System Wide Safety - "Results - **Battery Characterization**" Aerospace
2022: Novanode CCI - Total Cyber - Cybersecurity Presentation: Phone Apps and On-prem activities

Societies:

Drone Responders, IEEE, ISARRA, SACNAS, SHPE, KoC, Old Crows

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Volunteering:

2013-2019:	Robotics - VEX / VRC || Competition Engineering Judge
2015-2018:	NVCC STEM Festival
2015-2018:	SUAS trainer
2018:	Inspire! - Wallops Space Flight Center
2017:	FRC Mentor [High School Robotics: Software & Hardware]
2016:	Up Up and Away! [Foxcroft Drone Instructor & Drone Pilot]
2015:	NVCC Nanotechnology Research Award

Publications/Papers:

1.   National Aeronautics and Space Administration   [2014 - 2021]

1.1.   NASA **Langley Research Center -** Exploring the parameter constraints for the electrochemistry battery model - "**Battery Characterization**" System Wide Safety D320   **2021**

1.2.   NASA **SUITS** - University Puerto Rico Mayaguez - "Prodigy UI / UX" Artemis Augmented Reality Proposal - Team Collaboration - UPRM / NVCC - **On Prem Finalists**   **2020**

1.3.   NASA - **Lucy Space** Academy - Proposal Academy - xEMU upgrades- J.Sanchez   **2020**

1.4.   NASA - **Lucy Space** Academy - Mission Concept Academy - J.Sanchez -   **2019**

1.5.   NASA **Wallops** - Rain Sea Interaction Facility - **[** *Precipitation Imaging Package: Validation Software, Terminal Velocity of Rain, and Methods used to determine Precipitate Differences between Rain and Snow using a Rapid Video Capture System* **]** - J.Sanchez   **2018**

1.6.   NASA **Wallops** - Remote Sensing Research - (*Phragmites Australis - 2016 Spring - Wallops Island: Invasive Species & Sea Level Rise)* - J.Sanchez -   **2016**

1.7.   NASA **Langley** - sUAS Mechanisms / Sensor Testing (*Failure Points and Mechanism Strengths*) - J.Sanchez   **2015**

1.8.   NASA **Marshall Space Flight** - MARS Rover & Robotics Proposal - [*Tunneling operations on Mars - Aymaran drilling techniques using I.N.T.i.*] NASA Aerospace Scholars. - J.Sanchez -   **2014**

2.   Northern Virginia Community College: NOVA Nighthawks   [2014-2016]

2.1.   Drone SUAS Agriculture Whitepaper / Proposal (Ghana) - J.Sanchez | Dr. T. Addy   **2016**

2.2.   NVCC NightHawks - 2014 Global Robotics Competition | Robotics World Champion | Engineering Design Notebook [Creator] - J.Sanchez -   **2014**

Professional References

1. Dr. Tetteh Addy || PhD Physics Professor & Advisor || Phone: [757] 268-9992 || Email: taddy@nvcc.edu

2. David Jensen || Systems Engineer || Phone: [571] 208-9654 || Email: jdavid4@vt.edu

3. Samer Najia || Engineering / Former Boss / Mentor || Phone: [301] 526-7423 || Email: snajia@gmail.com