

**Blaze Sanders**

77 Cortland Ave San Francisco, CA 94110 | 415.910.3307 | Blaze.D.A.Sanders@gmail.com

|  |  |  |  |
| --- | --- | --- | --- |
| **Hardware:**  OrCAD Schematic Capture, Upverter PCB layout, Autodesk Inventor 3D, Documentation Skills, Aligni PLM, Atlassian JIRA, 3D printers, Altium PCB Designer / NanoBoard 3000, Linux Single Board Computers,  Microcontrollers, Communication protocols, Eagle PCB, RF and LASER communication, Link Budget analysis, Allergo Signal-Integrity Analysis, LISA FEA, [oxy-acetylene torch](https://www.youtube.com/watch?v=BAJfSkq7zfc)  cutting and TIG welding, wet carbon fiber vacuum bagging  **Software:**  Unity3D / C#, C++, Python, C, SPIN, Arudino, 8080 Assembly Language, Tortoise SVN& Git Desktop, Linux command line, Putty, WINSCP, VR stitching software, Java, Microsoft Office, Micro Logix PLCs, Lab View, Matlab, VB.Net 2010, [Optical Ray Tracing software](http://www.optics-lab.com/index.html), Appery.io using JSON & REST API’s, WebRTC, and [website design](http://solarsystemexpress.weebly.com) | **Chief Technology Officer**: SpaceVR-8/2015 to 9/2017- San Francisco   Hardware architected a 3U+ cube sat launching to the International Space Station in 2018   Chosen by Facebook to attend the 2017 Oculus Launch Pad Boot Camp – [LINK#1](https://www.oculus.com/launch-pad/) – [LINK#2](https://www.facebook.com/groups/109444306329056/?ref=br_rs)   Managed, coded, and documented Python and C++ firmware for NVIVDA TK1 – [LINK](https://github.com/SpaceVR-O1/OverviewOne)   Created Concept of Operations (ConOps) within limited power and Link Budget envelope   Show cased a teleoperated humanoid robot controlled in VR between USA & Mexico - [LINK](https://github.com/SpaceVR-O1/Human)  **Senior Electromechanical Engineer:** Meta- 5/2014 to 5/2015 - San Francisco   Brought augmented reality (AR) glasses with 90° FOV from TRL 1 to 7, via R&D in laser projection, LCD & LCOS displays, free form surface prisms, and toroidal optics – [PATENT LINK](https://www.google.com/patents/US20160139413)   Developed six layer PCB for 494 Pixel Per Inch, dual link 3D HDMI to MIPI DSI display driver   Measured hardware and software latency in the Meta 1 Dev Kit (Unity3D to display) and improved usability 26% while targeting low cost per ms systems for improvement in the Meta 2   Designed and manufactured weight efficient 3D printed optics (lens, prisms, and mirrors)  **Chief Technology Officer:** Solar System Express –8/2010 to 10/2013 – D.C.   Designed, fabricated, and debugged a six layer space tolerant (TRL 5) open hardware and software PCB used by students and skunk work teams to create prototype and MVP products   Created test fixtures with bus analyzer software for a 1,500 unit product release  *Consulting tasks* (H – Hardware Design, S – Software Design, 3D – 3D printing, F – Fabrication):   Stationary lifestyle timer – Theremin sensor based low power medical device (H,S) – [LINK](http://solarsystemexpress.weebly.com/uploads/5/0/6/0/5060129/thereminvision-ii-manual.pdf)   Juxtopia augmented reality glasses – Context aware medical device (H, 3D) - [LINK](https://technical.ly/baltimore/2014/10/31/juxtopia-etc-space-station-grant/)   Smart tennis racket – IMU based high density PCB with micro-display (H, S, 3D, F) - NDA   Smart blueprint portfolio – Android powered E-ink large format display (H, F) – [LINK](https://youtu.be/KBfbj5SZCGA)  **Electrical Engineer Civil Servant:** NASA MSFC– 9/2010 to 1/2012 - Huntsville   Completed two NASA System Requirement Reviews (SRR), two Preliminary Design Reviews (PDR) and two Critical Design Reviews (CDR), which included hardware testing& integration   Designed, fabricated, coded, and tested a four layer micro controller PCB for a lunar Wormbot   Developed US Band application assembly code to control mini Scanning Electron Microscope   Built flight hardware in partnership with JURBAN Google Lunar X-PRIZE team and raised $500K   Published five papers with UAH students and demoed our Lunar Wormbot in 1,000 lbs. of flour  **VB.Net Software Engineer Intern:** NASA JSC – 6/2009 to 8/2009 - Houston   Wrote 9,000 lines of code, used to evaluate human factors for the Orion spacecraft - [LINK](https://ntrs.nasa.gov/archive/nasa/casi.ntrs.nasa.gov/20090032246.pdf)   Worked monthly with Astronaut Reid Wiseman and received LinkedIn recommendation - [LINK](https://www.linkedin.com/in/blaze-sanders-88054021/)   Lead Space Elevator Centennial Challenge team and designed wireless power system - [LINK](https://www.nasa.gov/directorates/spacetech/centennial_challenges/beaming_tether/index.html)  **Volunteer**   [Girls Who Code:](https://girlswhocode.com/) Gave presentation on female engineers in the gaming industry (Nov 30, 2017)   [Mission Bit:](https://www.missionbit.com/) Taught JavaScript to high school students (13 weeks / Summer 2017)   [JURBAN Google Lunar X-PRIZE](https://www.youtube.com/watch?v=0skqMQQxq5g): Part-time Technical Program Manager (26 mo. / Sept 2012) | | |
| **Patent(s)**  [1]Wide field of view head mounted display apparatuses, methods and systems [*US 20160139413A1*](https://www.google.com/patents/US20160139413)  **Publications and Presentations**  [[1](http://lunar-cubes.com/about/)] B. Sanders, K. Ajmera, *GDB: A Space Tolerate Open Source Solution for Lunar Cubes,* The 4th International Workshop on LunarCubes,  Sunnyvale, CA USA, 2014.  [[2](https://drive.google.com/file/d/0BzDWAMX04mWdR2dIMWpuTVVPQkU/view)] B. Sanders, Dr. J. Doswell, M. Glaze, K. Thomas, C. Massok, B. Hassan, *Sustainable and Scientific Space Exploration via the JURBAN Google Lunar X-Prize (GLXP) Team,* NSBE Aerospace System Conference, Los Angeles, CA USA, 2012.  [[3](https://ntrs.nasa.gov/search.jsp?R=20110015021)] J. Johnson, B. Sanders, Dr. C. Carmen, *Design and Development of a Ground Based Robotic Tunneling Worm for Operation in Harsh  Environments,* 62nd International Astronautical Congress, Cape Town, ZA South Africa, 2011.  [[4](https://www.scribd.com/doc/45300045/wormbotv5-jhu#download&from_embed)] M. Kuhlman, B. Sanders, L. Zabowskiz, Dr. J. Gaskin, *Robotic Tunneling Worm for Operation in Harsh Environments,* Hopkins Undergrad  Research Journal, Issue 12 Fall 2010.  [[5](https://ntrs.nasa.gov/archive/nasa/casi.ntrs.nasa.gov/20090032246.pdf)] B. Sanders, *Human-System Integration Scorecard Update to VB.Net,* NASA Technical Reports Server, Johnson Space Center, 2009. | | | |
| **Awards & Accomplishments**  Chosen by Facebook to attend the 2017 Oculus Launch Pad Boot Camp – [LINK#1](https://www.oculus.com/launch-pad/) – [LINK#2](https://www.facebook.com/groups/109444306329056/?ref=br_rs)  Voted crowd favorite at the 2014 Space Start Up Weekend in Silicon Valley -[LINK](https://www.techstars.com/content/community/one-giant-leap-entrepreneurs-silicon-valley-hosts-startup-weekend-space/)  Won $2,500 2013 *DIY Rockets* open source 3D printed rocket engine design prize - [LINK](http://www.openspaceuniversity.org/rocketchallenge) | | | |
| Independent Projects (2008 to 2018)  [Death Star in SPACE:](http://solarsystemexpress.weebly.com/DeathStarInSpace.html) 180 mW laser satellite with computer vision and magnetic torque rods   [Ironman helmet:](https://www.facebook.com/RealLifeIronmanMarkI/) 3D printed helmet with 39° FOV AR optics & Linux run AWS voice commands   [Skydiving suit:](http://solarsystemexpress.weebly.com/space-skydiving-suit-rl-mark-vi.html) 3D printed aero spike rocket engine with 220 AR optics and finger control input   [Great Space for Girls:](http://solarsystemexpress.weebly.com/greatspaceforgirls.html) Won two grants to design tech (NO2 rocket) and fashion (space suit) hands-on space exploration lesson plans for middle school girls and under-represented groups   [J-Nav](https://l.facebook.com/l.php?u=https%3A%2F%2Fdrive.google.com%2Fopen%3Fid%3D0BxqypQr00Q1Pek9FUU1QSC1Fbld0UVYxSEpzUVNwdVEzZzJF&h=ATOMJQFRFbFwUj1L7bdAueLR3N1f921FJRsvJOP4hinzvAEfXu5l7ySnsu4tTQ0uQ0-O-6MBuvScGquYsT3G7QUjdPBE5RwHzoMydiWxe1t9pe7Ipg) (talking campus tour device): Designed and fabricated GPS, touch screen, and audio subsystems and programmed in constant time  adjacency matrix to calculate path solutions   [GAUI-500X Drone](https://shop.righthere.nu/gaui-kopters-spares-accesories/gaui-500x-full-kit-version-standard-motors-222005.html): Designed and fabricated custom carbon fiber camera mount, wireless charging, YEI 3-Space Inertial Measurement Unity (IMU), and LASER rangefinder systems   Martian Airlock: 1/10 scale system with pressure, force, and radiation sensors controlled by Programmable Logic Controller (PLC) and Basic Stamp   Talking Height Measuring Robot: Used [Emic 2](https://github.com/solx/DeathStarInLEO/blob/master/EMIC2.spin) voice synthesizer and ultrasonic based SONAR   [M.A.R.T.I.A.N](http://solarsystemexpress.weebly.com/MARTIAN.html): Software for a non-GPS based navigation device with [inertial navigation unit](http://en.wikipedia.org/wiki/Inertial_navigation_unit)   Passionate President of [JHU SEDS](http://jhuseds.weebly.com): Planned trip to final Shuttle mission (3 mo. / Jan 2011)   Engaged President of [JHU Amateur Radio Club](http://wireless2.fcc.gov/UlsApp/UlsSearch/license.jsp?licKey=2573358): Planned [APRS](http://www.aprs.org) events (6 mo. / Sept 2009)   Dutiful Membership Chair for JHU National Society of Black Engineers ([NSBE](http://www.nsbe.org/home.aspx)) (6 mo. /Sept 2009) | | | |
| **Education**  Johns Hopkins University (JHU) - May 2010  Bachelors of Science in Electrical Engineering  Bachelors of Science in Computer Engineering  Tompkins-Cortland Community College (TC3) - May 2008Associates of Science in Engineering Science | | Cumulative GPA: 3.80 / 4.00 | Phi Theta Kappa, Eta Kappa Nu, and Tau Beta Pi member*JHU William Huggins Award 2009* |
| GPA: 3.55 / 4.00 |
| GPA: 3.92 / 4.00 |