# Jacob **Holtom**

Electrical Engineer · Systems Administrator

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## Work Experience

### Artemis Inc
*Spanish Fork, Utah*

RADAR Engineering Intern
*Apr 2019 - PRESENT*

- Evaluate and develop autofocus algorithms for Stripmap SAR using Time-Domain Backprojection
- Explore and develop combined radar and communications waveforms
- Develop machine learning models for SIGINT
- Develop dirction finding algorithms for co-operate use on Software Defined Radar

### BYU Spacecraft Group
*Provo, Utah*

Lead Communications Engineer
*Apr 2016 - Apr 2019*

- Oversee twin satellites will fly in Sept 2019
- Design an end-to-end satellite communications system within technical constraints
- Lead RF engineering work including the design of dish and on-board antennas and amplifier systems
- Develop custom ground station system that utilizes an Ettus USRP and GNURadio

### L-3 Communication Systems West
*Salt Lake City, Utah*

RF Engineer
*Jan 2018 - Sep 2018*

- Design RF hardware for mission critical systems
- Test and debug RF hardware
- Work in team and follow standard engineering process

### BYU Computer Aided Engineering Design and Manufacturing
*Provo, Utah*

Assistant Systems Administrator
*Nov 2015 - Jan 2018*

- Developed Linux infrastructure to maintain storage, enable authentication and enhance the user experience
- Migrated to a new LDAP cluster and schema using SaltStack
- Implemented MIT Kerberos in the environment using SaltStack

### SolvereOne and HouseCall IT
*Dulles, Virginia and Washington D.C.*

Systems Administrator
*Jun 2013 - Oct 2015*

- Maintained and designed secure network deployments
- Deployed and maintained Windows user and application systems
- Managed Linux administration

## Education

### Arizona State University
*Tempe, Arizona*

M.S. in Electrical Engineering
*Aug 2019 - PRESENT*

- Pursuing thesis based masters in Electrical Engineering
- Focus on Electromangetics, RADAR, Communications and satellite systems

### Brigham Young University
*Provo, Utah*

B.S. in Electrical Engineering
*Sep 2015 - Apr 2019*

- Math Minor

### Thomas Jefferson High School for Science and Technology
*Alexandria, Virginia*

High School Advanced Studies Diploma
*Sep 2011 - Jun 2015*

- Designed NFC System for Senior Research Project
- Ranked number one high school in the United States

## Projects

### CCSDS Kernel Driver

Linux Address Family
*Jul 2017*

- Designed and implemented Linux kernel address family that adds CCSDS Space Packet Protocol support

### Low SWaP Cubesatellite Radio

PHOENIX/ELYSIUM RADIO                                                                 *CURRENT*

- Continuing developing of low size, weight and power cubesatellite radio
- Designing high performance radio supporting spread spectrum communication
- Compatible with many existing protocols and communication implementations

### IEEE AP-S Conference 2019                                                    *Atlanta, Georgia*

IEEE AP-S STUDENT DESIGN CONTEST                                         *Sept 2018 - July 2019*

- Designed low-cost FMCW Radar system for use with Raspberry Pi
- Designed system for use as a class-room demonstration of antenna properties
- Open-sourced design and code for further development and exploration
- Accepted as one of the top 6 finalists in international competition

## Publications

| | | |
|---|---|---|
| 2019 | **Passive CubeSats for remote inspection of space vehicles**, Journal of Applied Remote Sensing | *Cubesats and Nanosats for Remote Sensing* |
| 2018 | **Femtosats: Elegant Flight Telemetry for Model Rockets**, International Telemetry Conference | *Glendale, Arizona* |

## Extracurricular Activity

### Boy Scouts of America                                           *National Capital Area Council*

EAGLE SCOUT                                                                 *Jul. 2011 - Present*

- Designed and manufactured garden signs for the Old Stone House on M. Street in Washington D.C

## Competencies

- Active Directory, LDAP, Kerberos, Cisco IOS, Sophos UTM, Python, Haskell, C, C++, Embedded Development, Windows Server 2008 -2012 R2, CentOS/Ubuntu/Gentoo/RedHat Linux, BSD, Ansys HFSS, Matlab, Mathematica, VMWare vSphere, VMWare View, Microsoft Office 365, Nagios, Apache, NGINX, MySQL, PostgreSQL, HTML5, JavaScript, CSS, Java, Windows XP - 10, ZFS, SaltStack, LTspice, Autodesk EAGLE, Amateur Radio, FCC Licensing, RF Systems, Modulalation, Packetization and Framing, GNURadio, Ettus USRP, Nuand BladeRF, RF Analysis, Mentor Graphics Xpedition, RF PCB Layout, RF Testing Equipment (Spectrum, Network Analyzers, etc.), National Instruments AWR, Keysight ADS