Marvin L. Smith

CONTACT INFORMATION

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WORK EXPERIENCE

Senior Software Engineer, ISR, Aviation, and Security (IAS) Division
Sierra Nevada Corporation, Sparks, NV
January 2012 - Present

- Currently the Lead Developer for the Image-Processing software team on the Gorgon Stare Wide-Area Surveillance System.
- Primary fields of expertise are in remote sensing and high-performance computing.
- Examples of tasks I have performed...
  - Designed and implemented ortho-image rendering algorithms for use on airborne systems as well as HPC clusters.
  - Reverse-engineered camera calibration equations to incorporate new camera models.
  - Designed and implemented image stabilization algorithms.
  - Create and write GIS data (still imagery, motion imagery, vector data) to desired formats such as Pixia NUI, NITF, KML, MPEG/H264, Shapefiles, etc.
  - Assisted in the development of new camera models for multi-camera sensors.
  - I have also developed and managed much of the build, unit-test, continuous-integration, and deployment infrastructure required by our team.
  - Assisted with development of OS security hardening procedures and ensured compliance with DoD Security Technical Implementation Guides (STIGs) for Windows and Linux systems.

Staff Sergeant, Nevada Air National Guard,
Guidance and Control Shop, Avionics Flight, 152 MXS, Nevada Air National Guard
August 2006 - August 2012

- Instrumentation and Flight Controls Journeyman (2A553B).
- Maintenance and repair of USAF C-130 Guidance and Control Systems. Systems include Engine Instrumentation, Autopilot, Fuel Quantity, Digital Flight Data Recorder, and Flight Director.
- Operation Enduring Freedom Deployment, Bagram AB, Afghanistan
  August 2009 - December 2009
- Operation Iraqi Freedom Deployment, Talil AB, Iraq
  October 2007 - January 2008
- Active Security Clearance

Intern, Intelligent Robotics Group, NASA Ames Research Center,
Mountain View, CA

- June 2011 - August 2011

  Developed a crater detection algorithm for use in planetary surface characterization and terrain reconstruction. Primary use is for the alignment of LIDAR data from the LRO Satellite to images taken from the Apollo 15 and 17 missions.
- June 2010 - August 2010

  Developed algorithms for the open-source NASA Vision Workbench library which removes outliers from stereo reconstructions of the lunar surface.

Undergraduate Assistant, Computer Vision Lab,
Department of Computer Science and Engineering, University of Nevada, Reno
August 2010 - May 2011, August 2011 - January 2012

- Teaching Assistant
  - CS 302, Data Structures: CS 474, Image Processing: CS 485, Computer Vision

Technical Skills

- **Programming Languages**: C++, Python, Matlab, LaTeX, PowerShell, and Bash.
- **Software Experience**:
  - Image Processing : OpenCV, Matlab, NASA Vision Workbench
  - GIS : GDAL, GeoServer, libLAS (lidar), GeographicLib (EGM96/geoid APIs), some ArcPy
  - Distributed Computing : MPI, IBVerbs, RDMA, and BSD Sockets
  - Python : matplotlib, NumPy, SymPy, pyqt
- **Open-Source Projects Contributed:**
  - OpenCV, NASA Vision Workbench
- **System Administration**: Secure Configuration Management deployment (git, svn, Artifactory), constructing software build systems (Jenkins), and some computer networking.
- **Mechanical**: Electronics repair, Soldering, Hand/Power Tools, use of Military/Civilian technical manuals and wiring diagrams.

Publications

- Technical Reviewer
  Prateek Joshi, "OpenCV with Python By Example", Packt Publishing, October 2015, link
- Technical Reviewer
  Garcia, Aranda, Suarez, Tercero, "Learning Image Processing with OpenCV", Packt Publishing, March 2015, link
- Marvin Smith, Ara Nefian, "Outlier removal in stereo reconstructions of orbital images", International Symposium on Visual Computing, 2010.

Education

University of Nevada, Reno, Reno, NV

Bachelors of Science, Computer Science (Graduated: May 2012)

- UNR GPA: *3.65*, CS GPA: *3.6*
- Adviser: Dr. George Bebis
- Areas of Interest: Computer Vision, Image Processing
- Specialized Undergraduate Courses: Computer Vision, Advanced Computer Vision, Artificial Intelligence, Simulation Physics, and Image Processing.
- Graduate Courses Completed: Machine Learning, Computer Graphics, Patent Law (Business School).

Nevada Air National Guard 152 Maintenance Squadron, 152 Air Wing, Reno, NV

2A553B, Instrumentation and Flight Controls Journeyman

- Instrumentation and Flight Controls Craftsman Course
- Airman Leadership School, Correspondance, May 2011
- Instrumentation and Flight Controls Apprentice School, Sheppard Air Force Base, TX, June 2007
- Electronic Principles School, Keesler Air Force Base, MS, January 2007
- Basic Military Training, Lackland Air Force Base, TX, November 2006

Volunteering

Coach, Codebusters First Tech Challenge Robotics Team
Boys and Girls Club of Truckee Meadows
May 2016 - February 2020

Mentor, Boys and Girls Club of Truckee Meadows
March 2015 - May 2016

Groups

President, Association for Computing Machinery, UNR (Jan 2010 - May 2011)

References

Available Upon Request