

## Capt Shankar Kulumani

---

### CONTACT INFORMATION

1818 Anderson PL SE  
Albuquerque, NM 87108 USA

*Mobile:* 630-336-6257  
*E-mail:* shankar.kulumani@gmail.com

### RESEARCH INTERESTS

**Aeronautical Engineering with applications in control systems theory:** Focus on spacecraft attitude dynamics and control, estimation and orbit determination

### EDUCATION

**Purdue University**, West Lafayette, IN **January 2011 to December 2013**

M.S., Aeronautics and Astronautics Engineering

- Overall GPA: 3.66/4.00
- Area of Study: Spacecraft Dynamics and Control

**United States Air Force Academy**, Colorado Springs, CO **June 2005 to May 2009**

B.S., Aeronautical Engineering

- Overall GPA: 3.35/4.00

### PROFESSIONAL EXPERIENCE

**United States Air Force**, Kirtland AFB, NM

*Lead Test Engineer, Air Force Research Laboratory* **August 2011 to July 2014**

- Created orbit determination software for geo-stationary satellite
- Developed attitude dynamics simulations for CMG test-bed known as Attitude Control System Proving (ACSPG) ground
- Developed ground transmitter geolocation via satellite algorithm

*Deputy Space Vehicles Lead, Responsive Space Squadron* **May 2009 to August 2011**

- Responsible for development, integration, & test of ORS-1 satellite
- Extensive experience with technical management of diverse team
- Resolved \$600K satellite hardware issues and prevented ORS-1 launch delays

### PROFESSIONAL MEMBERSHIPS

American Institute of Aeronautics and Astronautics (AIAA), Member, 2012–present  
Sigma Gamma Tau, Member, 2008–present

### QUALIFICATIONS AND SKILLS

**MATLAB** skill set:

- Linear algebra, Monte Carlo analysis, Optimization, GUI development, statistics, estimation, orbit determination, data processing, visualization, dynamical system simulation, SIMULINK

Design Software:

- Solidworks, ProEngineer, AutoCAD

Computer Programming:

- Experience with C, C++, UNIX shell scripting, DVCS (Git)

Desktop Editing and Productivity Software:

- $\text{\LaTeX}$  ( $\text{\LaTeX}$ ,  $\text{\BibTeX}$ , PSTricks),
- Microsoft Office, OpenOffice.org, LibreOffice, Google Docs
- GIMP, InkScape

Operating Systems:

- Microsoft Windows family, Apple OS X, Linux/UNIX

Hardware Systems:

- PhaseSpace motion capture system
- Embedded robotic systems

Technical Training

- First aid training including Self Aid Buddy Care (SABC), CPR Heartsaver

EXPERTISE

Control Theory and Engineering:

- Linear and Nonlinear Systems Theory, Feedback, Optimization, Digital Control

Communications and Signal Processing:

- Probability, Random Variables, Stochastic Processes, Estimation, Statistical Inference

Astronautical Engineering:

- Analytical dynamics, Attitude Dynamics, Astrodynamics, Orbit Determination, Rocket Propulsion

AWARDS

United States Air Force Academy

- Awarded Commandant/Dean pin 8 consecutive semesters for high military/academic performance (2005-2009)
- Top Academic Performer - Astrodynamics 321 (2007)

SECURITY  
CLEARANCE

Department of Defense Top Secret SCI (awarded: 2010)