SHEN GE, PMP CSSGB EIT

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SUMMARY

Creative, entrepreneurial and self-motivated with a strong background in flight dynamics, mission design, operations, data analysis, space systems and synthetic imagery, I, Shen Ge, am an US Citizen brings unique value to the aerospace industry through my range of technical skills and knowledge base.

SKILLS:

AEROSPACE: Mission design, space dynamics, guidance navigation & control (GNC), space physics

SOFTWARE: Python, batch and bash scripts, C++, Linux, Git, Microsoft Office, GMAT, Copernicus, PANGU

OTHER: Data analysis, NAIF SPICE, NASA PDS, synthetic imagery, camera models, data analysis, numerical methods, space systems, proposals

WORK EXPERIENCE

Iron Ring Technologies, LLC. Houston, TX / **Integration & GNC Engineer** ***2019 – Present***

- Conduct mission design and analysis using Copernicus and a Python suite of tools heavily utilizing SPICE to examine spacecraft trajectories and attitudes satisfying requirements from multiple subsystems (power, communications, payloads, optical navigation, orbit determination) for Intuitive Machine (IM) lunar missions.
- Generate synthetic imagery of the lunar surface for optical navigation with Planet and Asteroid Natural Science Generation Utility (PANGU) and process them with terrain relative navigation algorithms for IM.
- Operate Trajectory (TRAJ) console for ground station tests and in operation sims as a front shift for Intuitive Machines (IM) lunar missions to conduct orbit determination (OD) via GMAT and generation of new trajectories to be uplinked.
- Create tools and writes procedures for on console operations during real time including comparing residuals, performing OD, comparing trajectories, generating trajectory files to be sent onboard, generating ground station tracking files, etc.
- Lead in creating camera calibration flight operations procedures as well as creating scripts with Python using OpenCV and SPICE for calibration of camera gain and exposure time.
- Extract and analyze planetary imaging data (LROC, Kaguya, etc.) with SPICE tools and Python to determine optimal landing sites based on GIS data (elevation, slope, rock distribution, etc.) as well as mission delta v constraints.

GeoControl Systems Inc. Houston, TX / **ISS Payload Integration Manager** ***2018 – 2019***

- Provide technical expertise to research integration office boards and panels, ISS boards and panels, and working groups.
- Assist payload developers in providing payload data sets, documentation and required resources.
- Manage schedules and coordinate activities of the integration team and subject matter experts with the payload developers.
- Modeling the ADCS system in Python within a BeagleBone Black connected to Tyvak's Intrepid platform as the ADCS lead of the RadSat project, a CubeSat project to measure plasma fields in the upper atmosphere.

Independent Contractor Houston, TX ***2016 – 2018***

- Research satellite market and performed opportunity cost analysis in Excel for space company LEO Launcher Logistics.

Triton Launch Systems Houston, TX / **Project Engineer** ***2014***

- Performed technical studies on small satellite payload integration into the HTOL vehicle in FORTRAN, which identified optimal ranges of satellite masses and altitudes / inclinations required for associated launch cost.

ECAPS LLC College Station, TX / **Co-founder & Project Manager** ***2012 – 2014***

- Led a team of eleven on the $1M Asteroid Mitigation Technology (AMT) project to analyze altering the method in albedo alteration of an asteroid to change its trajectory via Yarkovsky effect; modeled spacecraft's albedo payload in MATLAB.
- Spearheaded research and physics modeling in MATLAB for SMOTESS, a space telescope to scan for near earth asteroids (NEA); formulated NEA distribution model and telescope FOVs to characterize asteroid distributions detectable in 5 years.
- Researched asteroid resource exploitation, simulated trajectories and developed a new economic models (an improved net present value equation) in MATLAB resulting in two conference papers.

Excalibur Almaz Houston, TX / **Research Intern** ***2012***

- Designed cislunar spacecraft electrical power and ECLSS systems in Excel which was later adopted by the company.
- Simulated drag and heating of tethers for space reentry vehicles in MATLAB, which improved spacecraft performance.

Independent Contractor Houston, TX ***2011 – 2012***

- Led a team of four to compete in the 2011 European Satellite Navigation (ESNC) to use the European Galileo satellite constellation, which won first stage for two concepts – a water sensor and a travel app called HitchOn.
- Formulated strategy for future space exploration by leading a team of eight to write the grant "A Pipeline for Creating Future Cosmic Explorers" for DARPA-funded 100 Year Starship initiative.

EDUCATION

Engineer-in-Training Certificate (EIT) **July 10, 2018 – Present**
Project Management Professional Certificate (PMP) **June 13, 2017 – June 12, 2020**
Lean Six Sigma Green Belt Certificate (CSSGB) **December 1, 2016 – Present**
TEXAS A&M UNIVERSITY, MS Aerospace Eng., College Station, TX **January 2009-August 2011**
GEORGIA INSTITUTE OF TECHNOLOGY, BS Aerospace Eng., Atlanta, GA **August 2004-December 2008**
GEORGIA INSTITUTE OF TECHNOLOGY, BS Physics, Atlanta, GA **August 2004-December 2008**

AFFILIATIONS

SG2 on Space (Podcast Co-host with Dr. Leonard Kramer www.fb.com/theshenshow), Toastmasters Member (https://boeing.toastmastersclubs.org/), Planetary Society Member

US CITIZEN