Blake Thomas Johnson

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github.com/blaketjohnson | U.S. Citizen | Security Clearance: Eligible

Professional Summary

Aerospace engineering graduate student (M.Sc., 4.0 GPA) with a B.Sc. in Astrophysics and specialized experience in orbital mechanics, finite element analysis, and mission design. Graduate Teaching Assistant for AME 5493: Space Sciences and Astrodynamics, applying advanced technical expertise in orbital dynamics while supporting instruction and mentoring. Proven ability to develop high-fidelity simulations, analyze complex datasets, and communicate technical results clearly to diverse audiences. Background includes leadership as a business founder and educator, delivering measurable results in both academic and professional environments.

Core Competencies

- Systems Engineering; Problem Definition & Analysis; Mission Planning; Orbital Mechanics & Astrodynamics
- Project/Program Coordination; Stakeholder Collaboration; Technical Communication & Documentation
- Data Collection & Analysis; Performance Measurement; Business Risk Assessment; Safety Awareness
- Technical Reviews; Modeling & Simulation; Finite Element Analysis (FEA); High-Fidelity Simulations
- Python, MATLAB, LaTeX, Git; SolidWorks (CAD); Jupyter, NumPy, SciPy, Matplotlib
- Remote Sensing; Spectral Modeling (Sherpa); X-ray Data Analysis (Chandra/CIAO); Statistical Analysis
- Quality Control Practices; Process Documentation; Data Validation; Technical Report Generation

Education

University of Oklahoma — Norman, OK
M.Sc. Aerospace Engineering, *GPA: 4.0* — Expected May 2026
B.Sc. Astrophysics — May 2024

Relevant Coursework: Orbital Mechanics/Astrodynamics, Space Systems & Mission Design, Propulsion Systems, Finite Element Methods, Thermodynamics & Combustion, Computer Aided Design, Advanced Engineering Mathematics

Certifications: Data Analytics (OU, 2024), FAA Private Pilot (2003), PADI Certified Scuba Diver (1996)

Professional Memberships: American Institute of Aeronautics and Astronautics (AIAA)

Technical Skills

Programming:	Python, MATLAB, LaTeX, Git
Engineering:	Orbital Mechanics, Astrodynamics, Systems Engineering, Aerodynamics, Propulsion Systems, Spacecraft Design, Mission Planning, Flight Systems Analysis, Requirements Analysis, Finite Element Analysis (FEA), Thermodynamics, Heat Transfer
Data Analysis:	Remote Sensing, Computational Modeling, Signal Processing, Statistical Analysis, X-ray Data Analysis (Chandra/CIAO), Spectral Modeling (Sherpa), Astronomical Image Processing (PSF, Energy Filtering)
Tools:	SolidWorks (CAD), Jupyter, NumPy, SciPy, Matplotlib, MS Office Suite
Emerging Technologies:	Quantum Computing Fundamentals
Other:	Project Management, Technical Writing, Public Speaking, Team Leadership

Selected Projects & Research

Neptune–Triton Restricted Three-Body Problem Modeling | GitHub Repository

- Developed computational models incorporating J_2 perturbations to analyze orbital stability and spacecraft trajectory dynamics.
- Implemented high-precision numerical integration (DOP853) in Python for mission-critical trajectory simulations.
- Performed trend analysis of orbital data and validated results against literature to ensure modeling accuracy and reliability.

Dust, Gas, and Metallicities of Cosmologically Distant Lens Galaxies | Capstone

- Conducted comprehensive analysis of X-ray observations across 10 gravitational lens systems to measure dust-to-gas ratios and metallicity distributions.
- Collected and processed 124 Chandra X-ray datasets, developing automated processing pipelines for efficient data handling.
- Applied advanced spectral analysis techniques using Sherpa/CIAO workflows and Python for statistical modeling and trend identification.
- Produced technical reports summarizing methodology, findings, and implications for space science missions.

Professional Experience

Graduate Teaching Assistant
University of Oklahoma | Norman, OK *Fall 2025 – Present*

- Assist with lectures, grading, and exam preparation for AME 5493: Space Sciences and Astrodynamics, a graduate-level course in orbital mechanics and space sciences.

- Provide one-on-one mentorship during office hours, reinforcing comprehension of advanced astrodynamics and aerospace engineering topics.
- Support course development by preparing computational demonstrations (Python/MATLAB) for orbital dynamics and mission analysis.

Professional Tutor
Revolution Prep | Edmond, OK *March 2020 – Present*

- Deliver individualized instruction in SAT/ACT preparation, AP Calculus, and AP Physics, applying analytical reasoning and problem-solving methodologies.
- Develop customized learning plans with measurable performance metrics; average student outcomes include 150-point SAT increase, +2 ACT points, and one letter-grade improvement.
- Communicate complex technical concepts to diverse audiences, fostering comprehension in advanced quantitative subjects.

President / CEO
American Insurance Partners, LLC | Edmond, OK *August 2015 – March 2020*

- Founded and scaled operations to 150+ active accounts, overseeing strategic planning, risk management, and client relationship management.
- Directed cross-functional teams and established quality control procedures, implementing data-driven decision-making processes.
- Achieved 100% profit growth between 2017 and 2019 through strategic marketing initiatives and operational efficiency improvements.

Insurance Agent / Adjuster
Various Companies | OK *2010 – 2015*

- Managed client portfolios and resolved claims while maintaining adherence to regulatory standards and customer satisfaction.
- Applied investigative and analytical skills to assess risk, similar to hazard identification and mitigation in engineering contexts.