MATTHEW B. TRAVIS

matthew.travis@aphelionaerospace.com   https://www.linkedin.com/in/matthewbtravis/   (702) 771-6255

CAREER SUMMARY

I have over two decades of experience in the aerospace industry as a software engineer, aerospace engineer and entrepreneur. My experience ranges from software engineering, to launch vehicle design, and business operations. I am currently working with a highly driven team at Aphelion Aerospace to achieve the goal of bringing to market innovative new technologies supporting the satellite launch service and spacecraft systems industries.

I studied Computer Science and Aerospace Engineering at the University of Illinois in Urbana-Champaign. I started my career as a software engineer employed by the University, after which time, I transitioned to the private sector first at startups and small businesses and later at CDW and The Systems House (then owned by now- defunct US Office Products). In 2000, I relocated to Florida and continued my career as a contract software engineer at Kennedy Space Center, where I worked for NASA, Boeing, USAF, and other organizations.

AREAS OF EXPERTISE

Program Management	Technical Leadership	Systems Engineering
Engineering Management	Strategic Planning	Media & Public Relations
Startup Business Leadership	Propulsion & Thermochemistry	Non-Profit Management
Executive Leadership	Software Engineering	

RELEVANT WORK EXPERIENCE

Aphelion Aerospace – Lakewood, CO   3/2019 – Present
Chief Technology Officer (CTO) **– Founder**

I am a Founder and CTO of Aphelion, which is a satellite systems and launch services company. I recruited, built, and lead the engineering team as we work to commercialize an environmentally-friendly space launch technology and our partially-reusable Helios small satellite launch service for our customers. I also serve on the Executive team to guide the company's vision and plans.

In my role, I am responsible for leading the development of new technologies and implementing them in products and services. I have to coordinate the engineering design work, the team performing the work, and act as the interface between the engineering workforce and executive management. Our business involves both hardware and software and a high level of integration between systems and I coordinate that as well. I lead the planning and scheduling of R&D, product development, and the go-to market strategy in cooperation with the Executive team.

Some activities I have participated in or have sponsored on behalf of Aphelion include:

- Creative Destruction Lab, 2022.
- Space Force Assured Access To Space Industry Days 2022;
- Space Symposium Exhibitor 2021, 2022.
- Space Entrepreneur Summit 2021;
- Rockies Venture Club HyperAccelerator 2021;
- U.S. Air Force AFWERX EngageSpace 2020;
- NewSpace Business Plan Competition 2019;

Our mission is to be the "one-stop shop" for all of a satellite operator's needs. Our goals are to:

Produce and fly a fleet of low cost, scalable nanosatellite launch vehicles;
Provide a regular, scheduled launch service, following a model similar to the airline industry;

Create a complete, customizable, turnkey, nanosatellite solution with spacecraft components, software, launch and support services such as communications networks;

Some of the essential tools that we use are ANSYS, Autodesk Inventor, Siemens NX, Siemens FEMAP, Siemens Star-CCM+, Rocket Propulsion Analysis, STK, OpenRocket, and NASTRAN.

Aerospace Research & Engineering Systems Institute – Urbana-Champaign, IL   3/2003 – Present
Chief Executive Officer (CEO) **– Founder**

I have led the 501 (c)(3) non-profit Aerospace Research & Engineering Systems Institute since its founding in 2003 and currently manage the business affairs, industry collaborations and engineering management of the institute's programs. ARES Institute focuses on advanced enabling technologies for terrestrial power and deep space exploration applications.

Some of the organization's projects have included development of an experimental cubesat and solar sail propulsion, research into "green" propulsion for cubesats and as well as non-toxic, environmentally- friendly chemical propulsion.

ARES Institute also led the LunarSail deep space solar sail technology demonstrator and Calypso optical communications pathfinder cubesat projects.

The present focus of the institute is working with leaders in academia and industry to develop advanced enabling technologies for low-cost, fusion power and propulsion systems. Our current focus project is the Space, Plasma & High Energy Research Lab (SPHERELAB), a fusion research laboratory planned for Illinois.

Aphelion Orbitals – Union City, NJ   6/2016 – 11/2018
Chief Operating Officer **– Founder**

As one of the co-founders of the company, I created and led our team of developing a nanosatellite launch system, rocket engines, and cubesat components. I had overall responsibility for the engineering design of our propulsion system and launch vehicle hardware and software. We designed and built a fully-functional mobile test stand and data/control system. We also completed development and initial sales of a custom line of cubesat hardware, electronic and software components.

- Managed the day-to-day operations of the company affairs including budget planning, HR, employee insurance, taxes, payroll, legal compliance and ITAR/export compliance.
- Assisted the Board of Directors in management of company I was the primary point of contact for vendors, media and government agencies.
- Led the team at Aphelion Orbitals competing in the DARPA Launch Challenge in 2018 to demonstrate rapid-response launch capabilities. We were successful in competing the process (5 months) to qualify for the competition.
- Led the team at Aphelion Orbitals to design, build and test a unique environmentally-friendly propulsion system in 12 months.
- Presented at a number of industry events and speaking engagements, such as with the New York Space Alliance (NYSA) and NewSpace NYC.

Aphelion Orbitals successfully raised a $500,000 Seed Series funding round in 2017 which, combined with internal funding, enabled us to complete R&D and hotfire testing of our innovative "green" propulsion system for our launch vehicle design.

Some of the essential tools that we used are ANSYS, Autodesk Inventor, Solidworks, Rocket Propulsion Analysis, STK, OpenRocket, and NASTRAN.

Eckler Industries – Titusville, FL   5/2013 – 8/2017
Senior Software Engineer **– Data Systems Management**

> At Eckler's, I focused on leading a team of engineers for development, integration and support of the company's marketing and sales platforms, ecommerce systems, and Microsoft Dynamics AX infrastructure buildout. I had a lead role in projects to upgrade the company's marketing, sales, and distribution systems over a multi-year effort.

NASA – Kennedy Space Center, FL   7/2003 – 9/2011
Contract Engineer **– Ground and Launch Processing Systems**

> I provided engineering services for numerous projects at Kennedy Space Center through the end of the space shuttle program. I subcontracted to United Space Alliance, Boeing, NASA, and other companies and organizations at the space center. I performed work supporting the space shuttle, ISS, as well as commercial and planetary exploration space missions.
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> In addition to human spaceflight operations, some uncrewed missions that I supported include:
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> - Mars Curiosity
> - Juno
> - New Horizons MAVEN DSCOVR
> - Commercial satellite launch

NASA – Kennedy Space Center, FL   7/2001 – 2/2002
Contract Engineer **– Checkout & Launch Control System**

> Working for a subcontractor to the space shuttle program, I developed systems for the Checkout & Launch Control System program. A component of NASA's efforts at the time to extend the life of the space shuttle through 2020, CLCS was designed to completely replace the legacy Launch Processing System as well as ground pre-launch processing systems. The goal was to integrate the entire processing, prelaunch and launch operations into a single system with a high degree of automation.
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> One aspect of the CLCS program was modernizing processing systems that were developed in the 1970's and operated on outdated hardware using a custom language called the Ground Operations Aerospace Language. As a subcontractor, I worked in this area with a focus on modernizing the data and information flow architectures.
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> CLCS was cancelled in 2001/2002, along with portions of the International Space Station, due to budgetary concerns. However, many of the products our team created are currently being utilized in support of the Space Launch System.

Johnson Controls – Cape Canaveral, FL   7/2000 – 11/2000
Software Engineer **– Process Control**

> Worked as a subcontractor to support the Joint Base Operations Support Contract. As the prime operations contract, JBOSC managed and coordinated operations at Cape Canaveral Air Force Station on behalf of the U.S. Air Force. It covered areas ranging from security to civilian tenants and launch operators.
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> I worked on the data management aspect of the contract, including creating and managing data stores and software interfaces to implement required operations processes.

The Systems House – Des Plaines, IL   2/1999 – 7/2000
Software Engineer

I created Java and .NET based sales, inventory tracking and portal software for The Systems House. I also worked on the Y2K transition effort in 1999. The Systems House was a wholly-owned subsidiary of U.S. Office Products that managed all software and data management for the company. USOP was acquired in late 2000 / early 2001 and The Systems House was spun off on its own. There is currently a company with the same name. I did not work at that company.

University of Illinois – Urbana-Champaign, IL   6/1997 – 11/1998
Staff Programmer **– College of Agricultural & Consumer Economics**

Developed web based educational applications for the College of Agricultural, Consumer and Environmental Sciences. Served in a lead role in the development of JavaBeans components for online applications. Engineered application development using Perl, SQL and Java. Created Java-based user interfaces for the applications using AWT and Swing. Developed applications for staff to manage curricula, testing and student records. Responsible for design and implementation of MySQL, MS Access and MS SQL Server databases.

University of Illinois – Urbana-Champaign, IL   8/1995 – 1/1996
Software Engineer **– National Center for Supercomputing Applications**

- Developed applications in C++ and Java for real-time object sharing and communications.
- Created shared libraries in C/C++ that were callable from Java, in support of the Habanero object-sharing and collaboration project.
- Performed debugging and Q.A for the NCSA Mosaic web browser development team.

SKILLS

Project Management • Program Management • Engineering • Systems Engineering • Engineering Management • System Architecture • Software Development • Vendor Management • Integration • Leadership • Spacecraft • Early-stage Startups • Product Management • Visual Studio • Software Development Life Cycle (SDLC) • Management • Start-ups • MySQL • User Interface Design • C (Programming Language) • Object-Oriented Programming • Adobe Illustrator • Software as a Service (SaaS) • Agile Methodologies • HTML • Cascading Style Sheets (CSS) • XHTML • C++ • Java Web Services • Core Java • JavaScript • Java • AJAX • Python • MATLAB • Aerospace • Space Systems • Propulsion • Proposal Writing • Strategy • Technical Writing • Marketing • Science • Strategic Planning • SQL • Matlab • Linux

PROFESSIONAL ASSOCIATIONS

American Institute of Aeronautics & Astronautics (AIAA) , American Nuclear Society (ANS), National Space Society (NSS), Space Frontier Foundation (SFF), National Space Club – Florida, Electric Propulsion Society (ERPS), Reaction Research Society (RRS), Lifeboat Foundation

EDUCATION

BS in Computer Science
University of Illinois, Urbana-Champaign, IL 6/1997