

BRETT T. COPE

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ABOUT ME

I enjoy making things.

Distilling multi-disciplinary problems with complex requirements into elegant mechanical solutions is what drives me.

I am seeking opportunities to continue teaching and learning, along with a chance to work in areas that inspire me.

RELEVANT PATENTS

1. Satellite Array Architecture (US10177460B2)
2. Spacecraft Propellant Tank Mount (US20140103164A1)
3. Spiral Laminated Structural Cone and Manufacturing Method (US9205625B2)

EDUCATION

2008

MS, MECHANICAL ENGINEERING
USC

2007

BS, MECHANICAL ENGINEERING
USC

EXPERIENCE

FOUNDER/PRINCIPAL • CASCADE CREATE ENGINEERING SERVICES

- Violet Labs – Product Strategy Advisor. Provide end user context for productivity software for hardware developers.
- Boeing Satellites – Responsible Engineer for antenna system.
- AlmFab, Bourbon Moth Woodworking, Keith Johnson Custom Woodworking – Creating models, drawings, and build instructions for furniture designers aimed at woodworking hobbyists.
- Make With DiResta – Developed marketplace for woodworking plans, built end product and full-service online shopping platform.

PRODUCT MANAGER • INSITU • 2018 – 2022

- Lead for new platform architecture. Responsible for technology development plans and roadmaps for a novel UAS platform. Managed multiple sets of dynamic internal and external requirements. Presented optimized solutions for core business case and adjacency growth. Delivered products for proposal and strategy for development profile for a multi-year effort.
- Cost, schedule, and technical lead for a multi-disciplinary team of 20 on a new unmanned air vehicle and avionics system. Responsible for planning and executing \$6M project in a hybrid Agile and earned value management framework.
- Lead mechanical engineer for program of record air vehicle. Led team performing complex loads development, test, and analyses.

BOEING SATELLITE SYSTEMS • 2007 – 2018

PRIMARY CORE STRUCTURES MANAGER

- Directly managed 18 engineers supporting design and analysis for multiple space and aircraft platforms.
- Hiring focal for Spacecraft Products Organization (800 people). Led team of managers through hiring surge, overseeing recruiting events, talent interviews, hiring decisions, and onboarding.
- Focal for spacecraft structures in the initiative capture team. Implemented dozens of cross-functional solutions to reduce product cost and cycle time to completion.
- Space Vehicle Design Lead for new business team. Developed sizing and feasibility studies for multiple platforms, including multi-launch systems, LEO, MEO, and GEO communications satellites. Applied structures, antenna, payload, thermal, power, and control systems knowledge to rapidly generate proposals.

PRODUCTS IN USE

Protostar II
GPSIIF (12 satellites)
Intelsat 22
Intelsat 21
Intelsat 33e
Intelsat 35e
Intelsat 37e
JCSat 18
Viasat 2
ABS 2A
ABS 3A
Eutelsat 115WB
Eutelsat 117WB
SES 15
Viasat 3 (awaiting launch)
O3b mPower (awaiting launch)
NYBBSat1 (awaiting launch)

Insitu Integrator
Insitu ScanEagle3
Insitu ScanEagle Block F

TECHNICAL SKILLS

Engineering Software

CREO Parametric (CAD)
CREO Simulate (FEA)
MathCAD

Manufacturing Methods

Machining
Injection molding
Solid laminate CFRP
Honeycomb sandwich CFRP
Additive manufacturing

PREVIOUS BOEING ROLES

System Development

- Space Vehicle Design Lead for proprietary program. Developed the configuration of a novel complex space segment and led an interdisciplinary team to generate rapid concepts and determine breaking points with dynamic requirements. Created proposal products for a high non-recurring-engineering plan and technology development plan.

Product Development

- Feed products lead mechanical engineer. Led design for high throughput spot beam feed structure for all Boeing 702.
- Championed change effort enabling more efficient analysis methods and completing detail trade studies in development cycle. Resulted in \$100k savings per support panel, a \$600k savings in 2 concurrent vehicles.
- Follow-on programs realized additional \$800k in savings per spacecraft from reduced build time due to simpler design.

People Development

- Trained and encouraged early career employees to grow technical skillsets, empowering them to develop more efficient methods to close designs for strength and stiffness during layout and drawing release.

Process Development

- Introduced process for design engineers to analyze simple components using existing tools and recover interface loads, quickly optimizing design features without translating to heritage analysis tools. 75% cycle time reduction and 50% staff reduction realized over heritage program performance.
- Developed supplier for electron beam melting of titanium, driving closure of delta qualification and various supplier quality approvals. Enterprise's first additive manufactured metallic parts delivered September 2014.
- Redesigned components utilizing additive manufacturing capabilities to save 10lbs and \$100k per spacecraft.

New Platform Development

- Designed and detailed core structure for new vehicle platform. Team simultaneously developed two carbon fiber spacecraft structures with only one nonconformance due to engineering.
- Analyzed interfaces between carbon fiber and metallic parts using Mathcad and Creo Simulate. Method reduced iteration and cycle time by 50% over heritage metrics.
- Designed carbon fiber honeycomb sandwich and solid laminates working with balanced and symmetric ply layups, bolted and bonded joints for complex shaped structures.
- Led supplier as on-site engineering liaison to resolve manufacturing issues using new material systems on prototype spacecraft structure. Rapidly implemented design improvements to result in on time, successful hardware.
- Performed system level trade studies to communication satellites. Familiar with antenna design and packaging, optics for reflectors, optimizing payload layouts for performance, structure and thermal mass, and cost.