Caleb Asante Lead Systems Engineer

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PROFILE SUMMARY

- **Lead Systems Engineer** with **14 years** in **space systems**, leading systems engineering for **flight instruments** at NASA JPL after 8 years on **suborbital vehicle avionics** at Blue Origin.
- Works in **Polarion ALM** and DOORS, **SysML** in Cameo and **Capella**, **MATLAB** and **Ansys STK** for analysis, and **SpaceWire** and MIL-STD-1553 interfaces.
- Known for **instrument architecture**, **flight V&V campaigns**, **fault management design** and **radiation-tolerant design trades** under **NASA NPR 7123.1** and the NASA SE Handbook.
- Works with **principal investigators**, **flight software, mechanical and mission operations teams**, and presents at **PDR, CDR and project review boards**.
- Leads a team of **6 systems engineers**, mentors 3 of them toward lead roles, and sits on the section's **systems engineering review board**.

TECHNICAL SKILLS

Requirements & ALM Tools:	Polarion ALM, DOORS, ReqIF, Jira
MBSE & Modeling Tools:	SysML, Cameo Systems Modeler, Capella, SysML v2 (pilot project)
Simulation & Analysis:	MATLAB, Ansys STK, Python, Excel
Integration & Test Tools:	Hardware-in-the-loop, flight-like testbeds, thermal vacuum, vibration and EMC testing
Interfaces & Data Buses:	SpaceWire, MIL-STD-1553, RS-422, Ethernet
Safety & Reliability Methods:	FMECA, Fault tree analysis, fault management design, radiation effects analysis
Standards & Lifecycle:	NASA NPR 7123.1, NASA NPR 7120.5, NASA SE Handbook, ISO 15288, INCOSE

EDUCATION

California Institute of Technology — **M.S. in Aerospace Engineering** — Pasadena, CA · Sep 2010 to Jun 2012

WORK EXPERIENCE

NASA Jet Propulsion Laboratory — **Lead Systems Engineer** — Pasadena, CA · Apr 2020 to Present

- Lead a team of **6** systems engineers on 2 flight instruments for Earth science missions, from Phase B design through the critical design review and instrument delivery.
- Run the requirements flow-down in **Polarion ALM** from Level 3 to Level 5 for **2,800** requirements, each with a verification method agreed before PDR.
- Led trade studies on thermal margin, radiation tolerance and data volume with **MATLAB** and **Ansys STK** models, holding **25%** power margin at CDR.
- Planned the instrument V&V campaign across thermal vacuum, vibration and EMC testing, and closed all **1,350** verification items before delivery to the spacecraft.
- Designed the fault management for one instrument with the flight software lead, with **14** fault responses and safe modes tested on the flight-like testbed.

Blue Origin — **Systems Engineer to Senior Systems Engineer** — Kent, WA · Jul 2012 to Mar 2020

- Owned **18** ICDs between the avionics and propulsion systems on New Shepard, and ran the cross-team interface change board through 4 design cycles.
- Led vehicle-level integration testing for the crew capsule abort system, running **1,400+** test cases across HIL benches and integrated vehicle tests.
- Ran the FMECA for the flight computer chain and retired all **10** top critical failure modes before flight qualification.