

JASON D BARDIS, Ph.D.

US Citizen

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www.infernolab.com , www.youtube.com/c/infernolab/playlists

EXPERIENCE

MTS V - Mechanical Engineer: Panasonic Avionics Corp Lake Forest, CA: 2015-present

Designed mass-production commercial aircraft products. Created drawing packages, work instructions, engineering reports, etc. Conducted peer reviews, oversaw & troubleshot prototype builds. Sourced prototype parts, worked with foreign manufacturing facility to optimize production. Mentored junior engineers in CAD & drawing best practices, machined & modified parts in prototype machine shop, developed CAD standards.

- **Single & Dual Panel Antennas:** 2-DOF under-radome antenna. Leader of mechanical engineering team; SolidWorks CAD & PDM admin; reviewer for every drawing; led team on positioner redesign to improve reliability & cost with new encoder; led CAD conversion project; liaison to Procurement & Manufacturing.
- **Cradle for Passenger Tablet:** docking station to electromechanically latch and charge tablet & to provide wireless data to tablet and to passenger's portable electronics; CAD design, prototype drawing package.
- **High-Powered Seat Box, Media Loader & Duplicator:** lead design of flight & ground support products.

Sr. Project Engineer: Jabil-CHAD Anaheim, CA: 2015

Upgraded, organized, & standardized engineering, CAD, drawing, workflow procedures & processes. Designed public installation for interactive flexible automation robot in corporate showcase environment.

Sr. Mechanical Design Engineer: MDA Pasadena, CA: 2005–2011 & 2012–2015

Designed mechanisms, structures, tests, etc. for space and ground programs; wrote assembly instructions; created detailed drawing packages; assisted in management of budgets, schedules, trackers, vendors, contractors, & colleagues; conducted tests; oversaw & performed hardware assembly & machining; inspected parts; acted as CAD resource; presented at reviews; gave Lunch & Learn lectures; created documents for CAD procedures & engineering standards; performed stress analyses; mentored junior engineers.

- **SUMO FRIEND On-Orbit Satellite Servicing Robotic Arm: DARPA:** lead mechanical designer (CAD, drawings, assembly instructions, trackers) for pair of 7-DOF robot arms 10 feet long; customer-facing.
- **Curiosity Mars Rover: NASA: Mastcams:** lead structure/mechanism/tooling designer; assembly/tuning documents. Robotic arm: drawings, support tool design/test. Cruise stage: assembly tooling design.
- **Phoenix Mars Lander Robotic Arm: NASA:** designed structural components; designed & tested launch lock mechanisms; designed, built, and proof-tested arm static test hardware; oversaw static tests.
- **Mosquito Portable Dynamic Cone Penetrometer: Air Force:** adopted and improved design, built and tested first articles, upgraded for lower-cost/higher-quantity production, created assembly documentation.
- **X-32 Scissor Actuator: ATK Goleta:** designed high-torque, high-precision actuated joints for satellite mechanism, made assembly instructions, assembled delivery units, trained assembly technicians.
- **LSAS and MIDAS Hammer Drill Rock Corers: NASA:** adopted design and drawing package, tracked fabrication, designed and assembled Spirit/Opportunity Mars rover robotic arm tool changer.
- **GEMS and MACO: JPL/NASA:** performed concept designs & presented for 2 Mars mission proposals.
- **Featherlite II: No Boundaries:** designed, built prototype, & tested novel folding/disassembling scooter.

Sr. Product Engineer: WET Sun Valley, CA: 2011–2012

Designed new fountain elements & upgraded existing ones; created assembly/installation documents; ran life tests; coordinated vendors; performed stress analyses; reviewed designs and drawings; computed product costs; mentored in drawings, specs, and GD&T; upgraded procedures; librarian for classes and data sheets.

- **Aquanura Fountain at Efteling Theme Park, Kaatsheuvel, The Netherlands:** part of design team for robust pneumatic shutter mechanism for long-distance, high-power laminar flow water nozzles.
- **CityCenter, Las Vegas, NV:** upgrade kit for water nozzle rotary pneumatic shutter mechanism, tested for wear and corrosion. Designed reliability upgrade kit and technician workbench for submerged lights.
- **Wynn Hotel, Macau, China:** designed & tested submerged LED light, improved performance/size/cost for production, wrote assembly & installation documents; trained & guided techs; managed vendors; iterated design with machine shop for tubing stands & tool-free mount locks; optimized shipping packing.
- **BAPS Hindu Temple, Chino Hills, CA:** designed serviceable, submerged, distributed computing electronics enclosure to control fountain elements' solenoid coils. Worked with composites vendor.
- **The Big Brain Theory, Discovery Channel:** creative development of challenges for reality TV show; created budgets, parts lists, and direction for test runs; was on-camera expert judge for robot episode.

Applications Engineer: ThinGap Motor Technologies

Ventura, CA: 2002–2005

- Designed and developed brush & brushless DC electric motors, manufacturing equipment, assembly/test tooling for. Motors used in drones, medical devices, power tools, fans, robots, servos, and DARPA Mule.
- Involved in complete product design process: customer requirements/quotation, CAD design & drawing, machine shop vendor coordination, manufacturing/inspection/testing, customer installation/support.

The Infernolab Robotics: BattleBots, Robot Wars, BotBash, RoboGames, etc. 1996–present

- Designed, built, piloted over 21 bots in over 27 competitions. Won 3 times in the 60 lb class (in a field of over 100) in internationally televised BattleBots. Earned over \$80k in prizes, royalties, and appearances.
- On-camera cast judge for 2019, 2020, 2021 seasons of BattleBots on Discovery Channel & Discovery+.
- Content & presentation for GoEngineer Shape Your World 2017, displayed at SolidWorks World 2017.
- Started robotics business that became profitable in second year. Developed social media to document builds, sell products, & provide tutorials. YouTube channel has 4.5M views & 5.1k subscribers.
- Appeared on TV, radio, magazines, books, newspapers, trade shows, art shows, calendars, and websites. Proposal efforts raised over \$65k in sponsorship products, materials, services, and cash.
- Judge & safety inspector at several events. Gave private and public seminars, and workshops. Helped organize and promote a sold-out event. Acted as robot driver and pit crew for many other teams.
- Assisted in department proposals for UCSB undergraduate robot teams and then mentored them.
- Presentations, demos, & “Drawbot” robot build workshops at schools, kindergarten, & daycare.
- Puppeteered a robot for 2 episodes of “Grownups” TV sitcom, taped in front of a live studio audience.
- Hasbro mass-produced a remote control toy of 3-time champion robot Dr. Inferno Jr.
- Commissioned by LEGO to build remote control LEGO Mindstorms robots for two E3 trade shows.

Movie Effects Designer & Machinist: Mimic & Star Trek-First Contact Los Angeles, CA: 1996

Manufacturing Engineer: Dr. Ernst’s Teas (business conducted in French) Luxemburg: 1995

SKILLS

SolidWorks (Certified: Pro, Advanced-Drawings, Advanced-Sheet Metal; CAD Manager, Simulation), Creo Parametric, Agile PLM, ASME Y14.5M & Y14.100, GD&T, machine shop, MS Office, Photoshop, French.

INTERESTS

Robotics; CAD; pinball & video game collecting, repair, & modding; home improvement; science fair judging, FIRST/FIRST LEGO League judge & mentor; school volunteering; LEGO; car repair, upgrades, & racing; swing dance performance & teaching; music DJ; cycling; Habitat For Humanity; certified SCUBA diver.

EDUCATION

UC Santa Barbara: Mechanical Engineering - Solid Mechanics and Structures Division.

FAA-funded Ph.D.: “Effects of Surface Preparation on the Long-Term Durability of Adhesively Bonded Composite Joints.” 2002, GPA: 3.5. Machine shop class TA & after-hours student machine shop supervisor.

Cornell University: Mechanical and Aerospace Engineering

- Master of Engineering with Manufacturing concentration. Thesis project: “Improving Weld Quality on Aircraft Engine Turbine Blades.” Biomechanics class (artificial joints) teaching assistant. GPA: 3.6. 1993.
- B.S. Senior project: “Ford Hybrid Electric Vehicle.” GPA: 3.2. 1992.

SELECTED PUBLICATIONS AND PRESENTATIONS

“The Evolution of Mars Robotic Arm Technology”, Robot Magazine, Jul 2013.

“A Zoom Lens for the MSL [Curiosity] Mast Cameras: Mechanical Design and Development”, *41st Aerospace Mechanisms Symposium*, JPL, May 2012 (with Daniel Dibiasse and Rius Billing).

“How to Design with Composite Materials”, Lunch and Learn Lecture presentation at Alliance Spacesystems Mar 2008, WET Mar 2012, Panasonic Avionics May 2016.

“Look Ma, No Driver! A Look at the Long Beach Grand Prix”, *Servo Magazine*, Aug 2008.

Technical Editor for “Kickin’ Bot: An Illustrated Guide to Building Combat Robots” book, Wiley, Dec 2003.

“A BattleBots Champion Insight,” *BattleBots IQ curriculum*, Ch. 8: “Introduction to Design”, Aug 2001.

“A New Compression Test Fixture for Unnotched or Notched Thin Composite Laminates,” *Journal of Composites Technology and Research*, Jul 2000 (with Keith Kedward, Jack Bish, and Thomas Tsotsis).