

JASON D BARDIS, Ph.D.

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EXPERIENCE

- **Sr. Mechanical Design Engineer: ASI / MDA** **Pasadena, CA: 2005–Present**
 - Designed mechanisms, structures, tests, etc.; wrote assembly instructions; managed budgets, schedules, trackers, vendors, contractors, & colleagues; conducted tests; oversaw & performed assembly & machining of hardware; inspected parts; adopted & completed design work of others; acted as colleague resource for CAD expertise; presented at reviews; gave “Lunch & Learn” lectures; created in-house reference documents for CAD procedures & company standards.
 - **Mosquito portable dynamic cone penetrometer: Air Force Research Lab:** adopted & finished mechanical design of product, created drawings, assembled first articles, upgraded design for cost-effective mass-production, created assembly documents for future builds.
 - **N6 satellite dish: Northrop Grumman:** adopted lead mechanical design role, created & tracked part & assembly drawing package, interfaced with composites manufacturing facility.
 - **MSL “Curiosity” Mars rover: NASA/JPL:** Mastcam cameras lead mechanical design (independent zoom, focus, & filter wheel mechanisms to sub-.0001” precision) & tooling design, robotic arm & arm-handling test hardware & procedures, arm assembly drawings, cruise stage assembly tooling initial design.
 - **X-32 scissor actuator: ATK Goleta:** lead mechanical design of high-torque, high-precision actuated joints & instrumented passive joints for satellite membrane deployment, performed complete CAD design & drawing package & assembly instructions from concept to delivery, performed assembly of initial units & delivery units, & trained technicians for future assemblies.
 - **LSAS Hammer Drill/Corer: NASA/JPL:** adoption of lead design & drawing & fabrication tracking.
 - **MIDAS Drill/Corer: NASA/JPL:** design/assembly of tool changer with remote center compliance.
 - **SUMO 7-DOF satellite robotic arm: Naval Research Lab:** mass equipment list, master interface document for mechanical & electrical & mechatronics systems.
 - **GEMS & MACO: NASA/JPL:** mission proposals’ conceptual packaging design.
 - **Featherlite II scooter: No Boundaries:** folding & disassembling elderly/disabled person’s portable mobility scooter conceptual design & prototype construction & testing.
 - **Phoenix Mars lander robotic arm: JPL/NASA:** structure design, elbow & wrist launch locks design & tests, arm static test design/construction/execution/management.
- **Robot Combat Competitor: BattleBots, Robotica, Robot Wars, BotBash, Steel Conflict, ROBOlympics, Sozbots, RoboJoust, LEGO Mindstorms RoboGladiators, RoboGames, LEGO Mindstorms Mayhem, ComBots, Auction Hunters, etc.** **1996–present**
 - Designed, built, & competed with over 20 entries in over 25 robot combat competitions. Won several trophies including 1st place in televised BattleBots international 60 lb lightweight duels & rumble.
 - Robots & I appeared on TV, radio, magazines, books, newspapers, trade shows, art shows, & web pages. Raised tens of thousands of sponsorship dollars in products, materials, services, & cash.
 - Started robotics business that became profitable in 2nd year. Developed website documenting robots, selling products, & providing tutorials. YouTube channel has over 71,000 views as of 9/2011.
 - Volunteered as judge & safety inspector at several events. Helped organize & promote an event.
 - Puppeteered a robot for 2 episodes of “Grownups” TV sitcom, taped in front of a live studio audience.
 - For RoboChallenge, a grade/high school outreach program, created tug-o-war & sumo LEGO Mindstorms robots, gave lectures/demonstrations/tutorials of robotics/engineering/college studies.
 - Commissioned by LEGO to build remote control LEGO Mindstorms robots for two E3 trade shows.
 - Mentored undergraduate robotics teams.

- **Applications/Design Engineer: ThinGap Motor Technologies Ventura, CA: 2002–2005**
 - Designed & developed brush & brushless DC electric motors, manufacturing equipment, & assembly tooling for 12 projects: UAVs, medical devices, power tools, fans, robots, servos, & DARPA research.
 - Involved in initial customer requirements, concept designs, quotation process.
 - Coordinated design, held reviews, made drawing packages with BOMs that included cost & labor.
 - Dealt with vendors, purchased & inspected parts, managed project-related inventory levels.
 - Developed manufacturing tooling & processes, including written manufacturing instructions.
 - Oversaw & contributed to manufacture, testing, & delivery of finished products.
 - Supported customer in installation & troubleshooting of motors.
 - Performed hands-on machining, assembly, testing, & modification of motors & tooling.
- **Research Assistant & Consultant: UCSB / FAA / Boeing Santa Barbara, CA: 1997–2002**
 - “Effects of surface preparation on the long-term durability of adhesively bonded composite joints”.
 - Compared & rated various pre-bond surface preparation methods.
 - Evaluated & analyzed various strength-based & fracture mechanics-based test methods.
 - Presented results to FAA, commercial aviation manufacturers, Lamborghini, & at conferences.
 - Studied effects of accelerated aging (elevated temperature & pressure) on composites.
 - Designed, constructed, & tested a cost-effective open hole compression fixture & test method.
 - FAA funded post-doc consulting: “Technical Transfer of Surface Preparation Effects to Industry”.
- **Lab Technician: Boeing Composite Prototype Lab Long Beach, CA: 1997**
- **Movie Effects Machinist & Lighting Design: *Mimic*, *Star Trek: First Contact* CA: 1996**
- **Manufacturing & Computer Consultant: Dr. Ernst's Laboratoires Luxemburg: 1995**
- **Computer Technician: Facilities Management, UCSB Santa Barbara, CA: 1994**
- **Project Analyst: PTCG Burlington, MA: 1993–1994**
- **Teaching Assistant Cornell University & UCSB: 1993–1999**
- **Consultant: Cornell Masters Degree Project, Therm Ithaca, NY: 1992–1993**
- **Design Engineer: Ford Hybrid Electric Vehicle Team Cornell University: 1992**

SKILLS

SolidWorks (Certified SolidWorks Professional); ASME Y14.5 Engineering Drawing Practice; Geometric Dimensioning & Tolerancing; SolidWorks Simulation; PhotoWorks; Pro/Engineer; AutoCAD; Machine Shop; ANSYS; MATLAB; MS Office; Photoshop; Dreamweaver; languages: French & various programming.

INTERESTS

SAE, ASME, robotics, science fair/FIRST/FIRST LEGO League judge/mentor, home improvement, Habitat For Humanity, LEGO, car repair/upgrades/racing, video game collecting/repair, music DJ, competitive pinball, poker, cycling, racquetball, swing dance (performance/teaching), certified open water SCUBA diver.

EDUCATION

- **University of California Santa Barbara: Mechanical & Environmental Engineering—Solid Mechanics & Structures Division**
Doctor of Philosophy: studies in composite materials, March 2002, GPA: 3.5
- **Cornell University: Mechanical & Aerospace Engineering**
Master of Engineering: concentration in Manufacturing, May 1993, GPA: 3.6
Bachelor of Science, May 1992, GPA: 3.2

PUBLICATIONS & PRESENTATIONS (dissertation work is often cited by other researchers)

- Bardis, Jason D., "Look Ma, No Driver! A Look at the Long Beach Grand Prix", *Servo Magazine*, August 2008, pp. 49-54.
- Bardis, Jason D., "How to Design with Composite Materials", Lunch & Learn Lecture presentation at Alliance Spacesystems, March 6, 2008.
- Kedward K., and Bardis J., "Surface Preparation Evaluation for Bonded Composite Laminates", *17th Annual ASC Technical Conference*, Purdue University, West Lafayette, IN, October 21, 2002.
- Bardis, Jason Dante, "What is a Composite Material?", *BattleBots Magazine*, issue #3, Summer 2002.
- Bardis, Jason D., and Kedward, Keith T., "Technical Transfer of Surface Preparation Effects to Industry", MIL-17 Handbook/CACRC meeting, Miami, FL, March 22, 2002.
- Bardis, Jason D., and Kedward, Keith T., "Surface Preparation Effects on Mode I Testing of Adhesively Bonded Composite Joints", *Journal of Composites Technology & Research*, vol. 24, no. 1, January 2002, pp. 30-37.
- Bardis, Jason D., and Kedward, Keith T., "Effects of Surface Preparation on Long-Term Durability of Composite Adhesive Bonds", MIL-17 Handbook meeting, Santa Barbara, CA, October 15, 2001.
- Bardis, Jason D., "A BattleBots Champion Insight," BattleBots IQ school curriculum, Chapter 8.1: "Introduction to Design", August 2001.
- Bardis, Jason D., and Kedward, Keith T., "Effects of Surface Preparation on Long-Term Durability of Composite Adhesive Bonds", SME Technical Paper #EM01-341 (Dearborn, MI: Society of Mfg. Engineers, 2001), and 13th International Conference on Composite Materials (ICCM) Proceedings, Beijing, China, June 25-29, 2001.
- Bardis, J. D., and Kedward, K. T., "Effects of Surface Preparation on Long Term Durability of Composite Adhesive Bonds," FAA Technical Report DOT/FAR/AR-01/8, April 2001.
- Bardis, Jason Dante, "How to Avoid BattleBot Self-Destruction," BattleBots.Com Tips from the Pros, January 2001.
- Bardis, Jason Dante, "Robot Wheel Comparison Guide Brief," BattleBots.Com Tips from the Pros, January 2001.
- Tsotsis, T. K., Keller, S., Lee, K., Bardis, J., and Bish, J., "5000 Hours Aging of Polymeric Composite Specimens Under Elevated Pressure and Temperature," *Composites Science & Technology*, vol. 61, 2000, pp. 75-86.
- Bardis, J. D., and Kedward, K. T., "Effects of Surface Preparation on Long Term Durability of Composite Adhesive Bonds," *15th Annual ASC Technical Conference: Proceedings*, College Station, TX, September 24-27, 2000.
- Bardis, J. D., Kedward, K. T., Bish, J. O., Tsotsis, T. K., "A New Compression Test Fixture for Unnotched or Notched Thin Composite Laminates," *Journal of Composites Technology & Research*, vol. 22, no. 3, July 2000, pp. 136-145.
- Bardis, J. D., Kedward, K. T., Bish, J. O., Tsotsis, T. K., "An Alternate Compression Test method for Notched and Unnotched Composites," *45th International SAMPE Symposium: Proceedings*, Long Beach, CA, May 21-25, 2000, pp. 1149-1152.
- Bardis, Jason, and Kedward, Keith, "Surface Preparation for Adhesively Bonded Composite Joints," poster presented at *14th Annual ASC Technical Conference*, Dayton, OH, September 27-29, 1999.
- Tsotsis, T. K., Keller, S., Lee, K., and Bardis, J., "3000 Hours Aging of Polymeric Composite Specimens Under Elevated Pressure and Temperature," presented at *44th International SAMPE Symposium*, May 1999 (closed paper).
- Tsotsis, Thomas K., Keller, Scott, Bardis, Jason, and Bish, Jack, "Preliminary Evaluation of the use of Elevated Pressure to Accelerate Thermo-Oxidative Aging in Composites," *Polymer Degradation and Stability*, vol. 64, 1999, pp. 207-212.
- Bardis, Jason, "Hybrid Electric Vehicle," Cornell Engineer magazine, April 1992, p. 4.