

## ADAM D. BRYANT

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### Research and Professional Experience

|                     |                                                                                       |
|---------------------|---------------------------------------------------------------------------------------|
| Feb 2018 - Current  | Mechanical Engineer III, Thermo Fisher Scientific                                     |
| Jul 2014 - Feb 2018 | Research Engineer V, Center for Electromechanics, The University of Texas at Austin   |
| Sep 2010 - Jul 2014 | Research Engineer IV, Center for Electromechanics, The University of Texas at Austin  |
| Mar 2008 - Aug 2010 | Research Engineer III, Center for Electromechanics, The University of Texas at Austin |
| Jan 2005 - Feb 2008 | Research Engineer II, Center for Electromechanics, The University of Texas at Austin  |
| 2002 - 2005         | Graduate Research Assistant, Mechanical Engineering Dept, Texas A&M Univ              |
| 2001 - 2002         | Undergraduate Research Assistant, Mechanical Engineering Dept, Texas A&M Univ         |

### Skills and Software

- ◆ Mechanical Design
- ◆ System Engineering
- ◆ Drawing Generation with GD&T
- ◆ Bill of Material management
- ◆ Procurement / fabrication management
- ◆ Nuclear and high vacuum
- ◆ Design of hydraulic and electrical actuators
- ◆ Metallurgy and Strength of Materials
- ◆ SolidWorks with Product Data Management (PDM)
- ◆ ANSYS: static, thermal, dynamic, frequency, response spectrum
- ◆ SolidWorks Simulation: static, frequency, thermal, flow
- ◆ Matlab with Simulink
- ◆ Dynamic Analysis Dynamic Sim. (DADS)
- ◆ ADAMS Car with Tracked Vehicle Toolkit
- ◆ Photo / video editing and production
- ◆ Manual machine operation: Mill, Lathe
- ◆ Welding: stick, TIG, MIG

### Recent Project Experience

#### Mass Spectrometry – *Design of next generation mass spectrometry for HPLC and GC*

- Lead mechanical engineer for HPLC hardware upgrade project
  - Designing new hardware to fit current platform
  - Leading prototype development

#### Oshkosh – *Active Suspension Demonstration 6x6 90,000lb Airport Firefighting and Rescue Vehicle*

- Chief simulation and analysis mechanical engineer
  - Built rigid body dynamic models using DADS and integrated with active suspension Simulink model for co-simulation
  - Trade study evaluation of system topology and performance requirement specifications
- Power and cooling system lead mechanical engineer
  - Designed, evaluated, managed construction, and led installation of enclosure, structural system, electrical buss-work, and energy safety strategy for 700 Volt 10 Farad ultracapacitor bank, series connected generator charging system, and actuator cooling system
  - Retrofit environment with tight space and weight restrictions

#### Horstman – *Vehicle modeling and simulation, passive and active*

- Chief simulation and analysis mechanical engineer
  - Dynamic Model Generation & Evaluation for Active Suspension Development, Lead Analyst
  - Tracked and wheeled vehicles, 5,000 lb to 80,000 lb GVW
  - Integration of control systems and active components with modeled stock vehicle hardware
  - Trade study evaluation of system topology and performance driving specifications
  - Generation of final actuator and power system performance requirements
  - Automated simulation tasks to increase throughput capabilities 2 orders of magnitude over previous manual method

#### FCS - *Future Combat Systems in-arm Magnetorheological fluid actuator*

- Program Technical Lead
  - Designed, prototyped, and tested magnetorheological actuator concepts
  - 20,000 PSI actuator integrated magnetic flow path element into pressure vessel end-cap
  - Proof tested key design features to 58,000 PSI in custom in-house built pressure vessel

### **LAMPS - High temperature selective laser sintering machine**

- Unique features
  - 300C intended operating temperature for PEEK compatibility
  - Independently rotatable powder-spreading roller
  - Modular, removable build box
- Chief mechanical engineer
  - Designed custom machine components with input from industry partners and university faculty
  - Created detailed solid models, performed structural and thermal analysis, generated drawings
  - Orchestrated component purchasing
  - Supervised machine shop fabrication and component assembly

### **ITER - Electron Cyclotron Emission Hot Calibration Source**

- Program highlights
  - High energy neutron fluence (14MeV)
  - Ultra-high vacuum (10<sup>-9</sup> torr)
  - 20 year, 5000 hour design life without ability for maintenance
  - 700°C silicon carbide emitter, 1000°C molybdenum heater
  - High vibration / shock loading environment
- Chief mechanical engineer
  - Designed custom high vacuum, high temperature laboratory prototypes
  - Supervised fabrication and modification throughout experimental iteration
  - Integrated experimental results into production prototype design
  - Evaluated multiple design areas with FEA

### **Education and Training**

- Texas A&M University, College Station, TX, Mechanical Engineering, MS, 2005
- Texas A&M University, College Station, TX, Mechanical Engineering, BS, 2002

### **Publications**

1. Bryant, A., Beno, J., & Weeks, D. (2011). Benefits of electronically controlled active electromechanical suspension systems (EMS) for mast mounted sensor packages on large off-road vehicles. In *SAE 2011 World Congress and Exhibition*
2. Bryant, A., Beno, J., & Weeks, D. (2011) "Active Vehicle Stabilization for Reconnaissance and Command Control on the Move" paper presented at the National Defense Industrial Association, Ground Vehicle Systems Engineering and Technology Symposium, Dearborn, Michigan, August 9-11, 2011.
3. Fish, S., Booth, J. C., Kubiak, S. T., Wroe, W. W., Bryant, A. D., Moser, D. R., & Beaman, J. J. (2015). Design and subsystem development of a high temperature selective laser sintering machine for enhanced process monitoring and control. *Additive Manufacturing*, 5, 60-67. DOI: 10.1016/j.addma.2014.12.005
4. Austin, M. E., Pandya, H. K. B., Beno, J., Bryant, A. D., Danani, S., Ellis, R. F., ... Rowan, W. L. (2012). Conceptual design of the ITER ECE diagnostic - An update. *EPJ Web of Conferences*, 32, [03003]. DOI: 10.1051/epjconf/20123203003
5. Ouroua, A., Rowan, W., Phillips, P., Bryant, A., Weeks, D., Beno, J.H. (2017). Design Analysis, and Testing of a Hot Calibration Source for the ITER-ECE Diagnostic System. *Fusion Science and Technology* 72(3):1-6. DOI: 10.1080/15361055.2017.1330640