

Jeff Agnew

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SUMMARY:

- Mechanical design engineer with industrial machine (centrifugal compressor and turbine) design experience (4.5 years)
- Field experience with coal fired power plant construction and commissioning oversight (2 years)
- Desire to expand design engineering skill set and gain experience with different types of industrial equipment
- BSME; MSME; EIT; application approved to take NYS PE exam (not yet scheduled)
- Structural design and analysis of new rotating, stationary, and pressurized components (ANSYS), overall mechanical design of machines (SolidWorks), lateral rotordynamic analysis (XLRotor), modal analysis (ANSYS and BladePro), and design and operation of test machines
- Aesthetic and functional design of parts, including selection of fits and tolerances
- Reverse engineering of existing OEM machine parts that are no longer serviced or are unaffordable
- Strong mechanical background with industrial machine design and power plant construction experience, complimented by personal hobbies such as working on cars and metal working
- Evaluation of manufactured parts with defects based on analysis and best judgment
- Specification of high speed gear boxes used for centrifugal compressors (integral gear) and cryogenic expanders (epicyclic); work with supplier to achieve mutually acceptable designs
- Routinely review drawings and use geometric dimensioning and tolerancing (GD&T) and work with tolerances from .25-.0001"
- Open to relocation

OBJECTIVE:

Full time design or project engineer position in the industrial machinery or related field.

EDUCATION:

Master of Science in Mechanical Engineering (2011)

Texas A&M University, College Station, TX

Coursework was diverse and included turbomachinery, heat transfer, fluids, FEA, and aerosols.

Worked at the Turbomachinery Lab testing hydrodynamic bearings (see Experience below).

Bachelor of Science in Engineering (Mechanical) (2006)

Arkansas State University, Jonesboro, AR

Distinguished Graduate in Mechanical Engineering

EXPERIENCE:

Turbomachinery Design Engineer (October 2010 – Present)

Praxair, Inc., Turbomachinery Department, Tonawanda, NY

- Detailed mechanical design and analysis of cryogenic turbines and gas compressors
- Stress and deflection analysis of rotating and pressure containing components using ANSYS
- Successfully designed aluminum compressor impellers with tip speeds of 1800 fps
- Drawings reviewed for form/fit/function and geometric tolerancing
- Rotordynamic analysis (lateral) performed and bearing recommendations made to ensure machine stability using XLRotor and associated bearing codes
- Analytical modal analysis of compressor impellers and machine stands
- Interaction with vendors and shop personnel to resolve manufacturing issues and address concerns
- Specification and testing of materials and coatings
- Experience with both oil and gas bearing machines
- Lube oil and seal gas system design review

Mechanical Engineer I (September 2008 – October 2010)

Dynegy, Inc., Construction, Development, and Repowering Group, Houston, TX

- Regular field rotations to a new coal fired power plant under construction in Arkansas focused on construction oversight – P&ID reviews and system walk downs, owner representative to witness machine/system commissioning and testing, quality control, identifying problems and ensuring resolution
- Daily interaction with contractor and vendor personnel to get status updates and build working relationships
- Deeply involved with the installation, troubleshooting, and testing of the site fire protection system, including performance testing of the fire pumps for acceptance purposes
- Developed an emissions estimation calculator to compare gas turbines for potential repower projects in California
- Researched and prepared a study of solar photovoltaic technologies for possible addition to current conventional generation facilities in Arizona
- Worked with the environmental group to construct a wastewater permit modification and to resolve ash landfill issues

Research Assistant (June 2007 – September 2011)

Texas A&M University – Turbomachinery Laboratory, College Station, TX

- Worked on an existing hydrodynamic bearing test rig and investigated the rotordynamic properties of a flexible pivot pad bearing with and without an integral squeeze film damper
- See paper: “Rotordynamic Characteristics of a Flexure Pivot Pad Bearing With an Active and Locked Integral Squeeze Film Damper (GT2012-68564)”, or thesis: “Rotordynamic Performance of a Flexure Pivot Pad Bearing With Active and Locked Integral Squeeze Film Damper” (available for free download on the Texas A&M library website)

OTHER SKILLS:

- ANSYS; MATLAB; MS Office; SolidWorks
- Manual machining (lathe, mill); Media blasting; MIG welding (see certificate below); Blacksmithing
- Automotive (transmission rebuild, brakes, engine work, etc)

CERTIFICATIONS AND MEMBERSHIPS:

- American Red Cross Basic First Aid and Adult CPR (2010)
- American Safety and Health Institute (ASHI) CPR, AED, and Basic First Aid and Bloodborne Pathogens (2014)
- American Society of Mechanical Engineers (Member, 2005 – 2012)
- Engineer in Training (AR EIT #7085, 2006 – Present)
- Experimental Aircraft Association (Member, 2010 – Present)
- MIG Welding Certificate, for 25 hours of instructed welding (2007)
- MSHA 24 Hour Safety Course (June 2014)
- OSHA 30 Hour Construction Safety (2008)