Michael Platt

Mechanical Engineer
Easton, NH

EDUCATION: M.S., Mech. Eng., Lehigh University, 1988
B.A., Physics, Colgate University, 1982

EXPERIENCE:

Mechanical Solutions Inc., 2006 – 2020
Director and Principal Engineer. Managed gas turbine engine and liquid rocket propulsion projects related to health monitoring and prognostics, finite element modeling and analysis, rotordynamics, and software development for data reduction and analysis. Acted as Principal Investigator for several NAVAIR, NASA, and Air Force research projects for non-contacting measurement of airfoil vibration and fatigue. Managed NASA research programs for high-fidelity modeling of fluid-structure interaction.

Concepts NREC, 1993-2006
Lead Programmer, Group Manager, Software Architect, Director in Software Group. Managed, designed, and implemented computer-aided engineering software solutions for structural analysis, fluid-structural heat transfer, and blade design. Supported business development, sales, and marketing activities for customers in aerospace propulsion (air-breathing and liquid), DoD, NASA, and numerous industrial turbomachinery markets.

Project Engineer in Structural Group. Performed finite element analysis and test services for stress, vibration, and rotordynamics of turbomachinery for commercial, military, and aerospace applications. Designed and analyzed rotor and bearing system components for aerodynamic, vibration, and fatigue evaluations. Prepared and presented short course lectures in stress and vibration analysis and testing.

Textron Lycoming, Stratford, CT. 1988 - 1993
Structural Mechanics Engineer. Used FEA for structural and aeromechanical components with NASTRAN, ABAQUS, and ANSYS for centrifugal, thermal, and aerodynamic loads. Developed numerous computational tools using C and FORTRAN for Windows, UNIX, VAX-VMS, and IBM mainframe for aeroelastic finite element analysis of compressor and fan blade flutter, rotordynamics, and automated fatigue and material property testing.

PATENTS:

"Combined Amplitude and Frequency Measurements for Non-Contacting Turbomachinery Blade Vibration", M. Platt and J. Jagodnik, assignee: Mechanical Solutions Inc., Whippany, NJ. US Patent No. 20110098948. EU Patent No. 2261614.

"Strain Gage Modification Process for Hostile Environments", B. Wegner and M. Platt, assignee: Textron Lycoming, Stratford, CT

PUBLICATIONS:

T. Serbowicz and M.J. Platt, "Microwave Sensing System for Ceramic Bearings", ISA 61st International Instrumentation Symposium, May 11-14, 2015, Huntsville, AL

M.J. Platt and H. Endo, "Durability Testing for Turbine Engine Instrumentation", ISA 61st International Instrumentation Symposium, May 11-14, 2015, Huntsville, AL

H. Endo, M.J. Platt, and B. Bullerman, "Development of Highly Simulative Subscale Testing", Propulsion – Safety and Affordable Readiness (P-SAR) Conference, March 30 – April 2, 2015, Baltimore, MD.

M.J. Platt and H. Barnard, "Durability Testing for Turbine Engine Instrumentation", Joint PIWG and EVI-GTI Fall Conference, October 20-24, 2014, Hasbrouck Heights, NJ.

M.J. Platt and K.R. Lavoie, "Waveform Quality Standards for Blade Tip Timing", ISA 59th International Instrumentation Symposium, May 13-17, 2013, Cleveland, OH.

M.J. Platt, J.J. Jagodnik, and J.A. Weiss, "Microwave Measurements from Benchtop Test Rig", Propulsion Instrumentation Working Group (PIWG) NSMS Workshop, ISA 58th International Instrumentation Symposium, June 4-7, 2012, La Jolla, CA.

M.J. Platt and J.J. Jagodnik, "Enhancement to Non-Contacting Stress Measurement of Blade Vibration Frequency", NASA Tech Briefs, Vol. 35, No. 9, Sept. 2011.

M.J. Platt, J.J. Jagodnik, and B.S. Fisher, "Validation of Direct Mode Identification for Blade Tip Timing", Propulsion Instrumentation Working Group (PIWG) NSMS Workshop, ISA 57th International Instrumentation Symposium, June 20-24, 2011, St. Louis, MO

M.J. Platt, J.J. Jagodnik, and B.S. Fisher, "Gas Turbine Engine Blade Vibration Monitoring", Joint PIWG and EFI-GTI Conference, October 27, 2010, Newport News, VA

M.J. Platt, J.J. Jagodnik, and B.S. Fisher, "Direct Frequency Measurements for NSMS", Propulsion Instrumentation Working Group (PIWG) NSMS Workshop, ISA 56th International Instrumentation Symposium, May 11, 2010, Rochester, NY

M.J. Platt and J.J. Jagodnik, "Advances in Non-Contacting Stress Measurement for Turbomachinery Blades", 64th Meeting of the Society for Machinery Failure Prevention Technology, April 13-16, 2010, Huntsville, AL

J.J Jagodnik, M.J. Platt, and B.S. Fisher, "Development and Validation of Frequency Domain NSMS", Propulsion – Safety and Affordable Readiness (P-SAR) Conference, March 16-18, 2010, Jacksonville, FL

M.J. Platt and J.J. Jagodnik, "Frequency Domain Applications for NSMS", Propulsion Instrumentation Working Group (PIWG) Meeting, ISA 55th International Instrumentation Symposium, June 1-5, 2009, League City, TX

M.J. Platt and J.J. Jagodnik, "Non-Contacting Measurement Of Turbomachinery Blade Vibration", 63rd Meeting of the Society for Machinery Failure Prevention Technology, April 28-30, 2009, Dayton, OH

M.J. Platt and J.J. Jagodnik, "Extending NSMS Capability in the Frequency Domain - Development and Validation", Propulsion – Safety and Affordable Readiness (P-SAR) Conference, March 24-26, 2009, Myrtle Beach, SC.

M.J. Platt, E.M. Bennett, M.D.P. Leland, and M. Jones, "Development and Validation of 3-D Fluid Structure Interaction Analysis for Turbopumps", 4th JANNAF Liquid Propulsion Subcommittee Meeting, December 8-12, 2008, Orlando, FL.

N. D'Orsi, B. Bartlett, P.K. Sgarlata, and M.J. Platt, "Integrated Health Management System for Liquid Rocket Propulsion Turbomachinery", 4th JANNAF Liquid Propulsion Subcommittee Meeting, December 8-12, 2008, Orlando, FL.

M.J. Platt and J.J. Jagodnik, "High Speed Continuous Blade Health Monitoring for Turbine Engines", Propulsion – Safety and Affordable Readiness (P-SAR) Conference, March 18-20, 2008, Myrtle Beach, SC.

M.J. Platt and E.J. Olson, "Continuous Blade Monitoring in Gas Turbine Engines", 61st Meeting of the Society for Machinery Failure Prevention Technology, April 17-19, 2007, Virginia Beach, VA.

M.J. Platt and W.J. Kelly, "Comparison of Laser, Acoustic, and Conventional Probes for Turbomachinery System Spectral Analysis", 61st Meeting of the Society for Machinery Failure Prevention Technology, April 17-19, 2007, Virginia Beach, VA.

M.J. Platt, W.D. Marscher, K.S. Burton, "Multi-Physics Analysis of Turbopumps with Bi-Directional 3-D Fluid Structure Interaction", 54th JANNAF Propulsion Meeting, 3rd Liquid Propulsion Subcommittee Meeting, May 14-17, 2007, Denver, CO.

K.N. Oliphant, M.J. Platt, J.B. Bicknell, "Multi-disciplinary design optimization: The path to a 100,000 suction specific speed inducer", 53rd JANNAF Propulsion Meeting, 2nd Liquid Propulsion Subcommittee Meeting, December 2005, Monterey, CA.

M. J. Platt and M. W. Marsh, "Thermo-Mechanical Turbopump Modeling and Analysis at Steady-State and Transient Conditions" 52nd JANNAF Propulsion Meeting, 1st Liquid Propulsion Subcommittee Meeting, May 10-13, 2004, Las Vegas, NV.

D. Japikse and M.J. Platt, “Optimization in Component Design and Redesign”, 10Th International Symposium on Transport Phenomena and Dynamics of Rotating Machinery (ISROMAC), March 7-11, 2004, Honolulu, HA.

C. Osborne, M. J. Platt, P. S. Weitzman, and K. Denus, “Multi-Disciplinary Optimization Applied to a Turbocharger Compressor Impeller”, The IX International, Scientific and Technical Conference, Fluid-Flow Turbomachinery, October 16 – 18, 2003, Rzeszow, Poland.

M. J. Platt and M. Marsh, "Thermo-Mechanical Modeling and Analysis for Turbopump Assemblies", 14th NASA Thermal & Fluids Analysis Workshop (TFAWS '03), August 18-22, 2003, Hampton, VA.

M. J. Platt, M. M. Yu and M. Marsh, "Multi-Disciplinary Design Optimization of a LNG Turbopump Design", AIAA Joint Propulsion Conference, July 20-23, 2003, Huntsville, AL.

M. Platt, “Robust Multidisciplinary Design Optimization of an LH2 Turbopump Incorporating Uncertainty”, JANNAF Modeling & Simulation Subcommittee, Workshop on Simulation-Based Design in the Face of Uncertainty, July 20, 2003, Huntsville, AL.

P. S. Weitzman, M. J. Platt, M. M. Yu, "Multi-Disciplinary Optimization of a Turbocharger Compressor", 2003 International iSIGHT Automotive Conference, May 20-21, 2003, Southfield, MI.

M. Platt, H. Cudney, K. Rosen, “Development and Seeded Fault Testing of an Engine Health Monitoring System”, American Helicopter Society International 58th Annual Forum, June 11-13, 2002, Montreal, QC, Canada

M. Platt, H. Cudney, K. Rosen, “Seeded Fault Testing for Engine Health Monitoring System”, The 7th National Turbine Engine High Cycle Fatigue Conference, May 14-17, 2002, Palm Beach Gardens, FL.

M. Platt, C. Cook, and M. Marsh, “Thermo-Mechanical Turbopump Design and Analysis Tools,” The 2nd Joint Army-Navy-NASA-Air Force (JANNAF) Modeling and Simulation Subcommittee Meeting, April 8-12, 2002, Destin, FL.

M. Platt, C. Cook, and M. Marsh, “Integrated Thermo-Mechanical Design and Analysis Tools for Turbomachinery,” The 9Th International Symposium on Transport Phenomena and Dynamics of Rotating Machinery (ISROMAC), February 10-14, 2002, Honolulu, HA.

M. Platt, C. Cook, and M. Marsh, “Integrated Turbopump Thermo-Mechanical Design and Analysis Tools,” Thermal Fluids Analysis Workshop 2001 (TFAWS 2001), September 10-14, 2001, Huntsville, AL.

D. Japikse, N. Baines, and M. Platt, “Design Study for a Low-Cost LH2 Turbopump,” 1st Joint Army-Navy-NASA-Air Force (JANNAF) Modeling and Simulation Subcommittee Meeting, November 13-17, 2000, Monterey, CA.

D. Japikse, N. Baines, and M. Platt, “Design Study of a Low-Cost LOX Turbopump,” Thermal Fluids Analysis Workshop 2000 (TFAWS 2000), August 21-25, 2000, Cleveland, OH.

T. Yoshinaka and M. Platt, “System for Detection, Measurement, and Avoidance of High Cycle Fatigue in Turbine Engines,” NAWC_AD SBIR N00421-97-C-1339, February, 1998.

M. Platt, “Research, Design, and Development of Cost Effective Optical Vibration Monitoring System,” TACOM SBIR DAAE07-95-C-X039, February, 1996.

W.D. Marscher and M. Platt, “Advanced Determination and Control of Steady and Dynamic Excitations for Turbopumps Using Magnetic Bearings”, USAF SBIR 94-092, March, 1995.

M. Platt and W.D. Marscher, "Rapid FEA of Impeller Stress and Vibration in the Agile Engineering Process", ASME Rotating Machinery Conference and Exposition, Somerset, New Jersey, November 10-12, 1993.

W. Dornfeld and M. Platt, “Development of Non-Contacting Blade Vibration System”, DoD IRAD Report, Textron Lycoming, Stratford, CT., December, 1992.

M. Platt and W. Dornfeld, "The Importance of the Statistical Distribution of Spectral Amplitudes in Vibration Schedule Development", 63rd Shock and Vibration Symposium, White Sands Missile Range, October 26-30, 1992.

M. Platt and W. Dornfeld, "The Generalized Shock Response Spectrum", 62nd Shock and Vibration Symposium, Defense Nuclear Agency, October 29-31, 1991.