JOSEPH A. BOROWIEC, PH.D., PE

718.403.0993 *jb@mesimsol.com*

QUALIFICATION SUMMARY

Accomplished engineer and researcher with 29 years of practical experience in Mechanical Engineering, and 17 years of teaching experience. Adept in working independently, within small and large team environments, on projects with development schedules ranging from 3 months to 10 years. Excellent analytical skills with a proven track record versus empirical data correlation. Lead mechanical analyst for over a 100 products or assets and performed over 1000 computer simulations. Background encompasses commercial and government sectors. Areas of expertise encompass:

Structural Analysis	Buckling Analysis	Modal Analysis	Vibration Analysis
Nonlinear Analysis	Relaxation	Thermal Stresses	Failure Prediction
Fluid Dynamics	Pressure Drop	Heat Transfer	Fan Performance
Solar Loading	Humidity Control	Statistics	Trend Analysis
Monte Carlo Simulations	Test Design	Thermocouples	Accelerometers
Acoustic Noise	Electronic Packaging	Electronic Cooling	Consulting

TECHNICAL SOFTWARE

SolidWorks, Pro/E, SolidWorks Simulation, Autodesk Simulation CFD,
COSMOSM, ANSYS, Matlab, Derive, SigmaPlot

PROFESSIONAL EXPERIENCE

MECHANICAL SIMULATION SOLUTIONS **2008 - Present**

Mechanical Engineering Consultant

Consult closely with design engineers in evaluating and guiding designs to optimum performance.

- Accomplished structural and thermal analytical projects with recommendations regarding future mechanical platforms for $9B telecommunications company.
- Other notable achievements include thermal design of indoor and outdoor equipment, flow balancing of circuit pack shelves, analysis of liquid cooled electronics, digital circuit packs and RF amplifiers, small ruggedized electronic systems and power supplies, structural analysis of equipment subjected to environmental criteria including earthquakes and random vibrations, examination of localized contact stresses, plastic parts and assemblies, and detailed review and comparison of design requirements.

NYU POLYTECHNIC SCHOOL OF ENGINEERING (Formerly NYU-POLY) **2009 - Present**

Industry Professor

Courses: Statics, Mechanics of Materials, Senior Design I and II, Digital Controls, Introduction to Solid Mechanics, Advanced Mechanics of Materials, Mechanical Vibrations, Finite Element Analysis. Undergraduate Academic Advisor for the Department of Mechanical & Aerospace Engineering and member of numerous undergraduate committees.

POLYTECHNIC INSTITUTE OF NYU (NYU-POLY) **1996 - 2008**

Adjunct Professor

Courses: Introduction to Solid Mechanics, Advanced Mechanics of Materials, Advanced Dynamics, Mechanical Vibrations, Finite Element Analysis, Applied Computational Methods.

ALCATEL-LUCENT (Formerly Lucent Technologies) **1995 - 2008**

Consulting Member of Technical Staff Appointment 2007 – 2008 Alcatel-Lucent

Provided reliable, cost-effective solutions to thermal, structural, and acoustic problems for Mobility telecommunication products. Major accomplishments:

- Designed thermal strategy for outdoor Modcell 5.0. Product required flexible cooling design which met varying heat loads up to 10kW. Achieved goal with scalable fresh air cooling approach while reducing acoustic noise relative to legacy product.
- Created thermal strategy for outdoor BTS3430 base station. Product required small sized cooling system to meet stringent acoustic noise requirements. Achieved goal with inexpensive fan design solution coupled with passive recirculation scheme. Met ETSI protected noise requirements.

- Provided structural analysis for a plastic protective canopy design for company Government Systems. Performed structural simulations and design recommendations which more than doubled the fundamental model of vibration which met customer requirements.

Consulting Member of Technical Staff Appointment 2000 – 2007 Lucent Technologies

- Designed thermal strategy for outdoor BTS2400. Required powerful cooling design to meet tight spatial constraints with heat loads up to 1kW utilizing a fresh air cooling approach while maintaining a long filter life. Also reduced testing time and costs by careful extrapolation of room temperature data and performance thereby eliminating temperature chamber tests.
- Designed structural strategy for cost reduced indoor Universal Network Cabinet. Required and developed a flexible structural design where: nearly all welds were replaced with rivets, populated cabinet weight could exceed 1000 pounds, and arbitrary and unknown populations were possible.
- OneBTS Thermal Team Lead at the onset of the common platform paradigm. Thermal organization and overview was required to unite thermal designers across the US and UK. Introduced flow down requirements to all sub-teams owners to maintain overall system compliance in a tractable fashion.
- Developed OEM internal operating random vibration specification for Wireless assets to provide early detection of possible non-compliance.
- Other notable analyses and tests on products and applications: various RF amplifier and PWB thermal designs; plastic armor development; leakage through weather and EMI gaskets; floor and pole mount, and battery plinth earthquake survivability; solar shield hurricane survivability, indoor cabinet thermal designs, acoustic hut thermal designs, fan tray simulations; Monte Carlo based thermal design technique for widely varying heat dissipations.

Previous Positions Held: Distinguished Member of Technical Staff Appointment - 1997 – 2000, Member of Technical Staff - 1995 – 1997, Member of Technical Staff AT&T Bell Laboratories - 1984 – 1995

MAJOR AWARDS

- **NSG President's Award 2004**, member of CDMA BTS 4400 team
- **Lucent Technologies Environment, Health, and Safety Champions Award 2004**, member of Modcell Solar Shield team
- **Lucent Technologies Environment, Health, and Safety Champions Award 2003**, member of Mobility UNC team
- **Bell Laboratories President's Gold Award 2003**, member of Flexent Modular 4.0 Compact Cell team
- **Bell Laboratories President's Gold Award 2002**, member of OneBTS™ Common Platform team
- **Bell Laboratories President's Silver Award 2002**, member of CDMA Modcell Platform Evolution and Cost Reduction Project

PATENTS HELD

- Patent Number 6266877, July 31, 2001
- Patent Number 6060659, May 9, 2000
- Patent Number 6018460, January 25, 2000

LICENSE / INTEREST

Licensed Professional Engineer
Black Belt in Tae Kwon Do

EDUCATION

PhD, Mechanical Engineering, Polytechnic University
MS, Mechanical Engineering, Polytechnic University
Teaching Assistant
BS, Mechanical Engineering, Polytechnic University
Graduated Summa cum Laude (3.95 GPA)
William H. Searight Memorial Award Recipient
Member of Tau Beta Pi and Pi Tau Sigma