Adam John Brzezinski

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EDUCATION

2007 - present **Ph.D. in Aerospace Engineering (exp. April 2010)**, University of Michigan
Dissertation: *Sensor Fusion for Condition Monitoring: A Unified Approach*
Cumulative GPA of 7.13 / 9.0

2003-2005 **M.S.E in Mechanical Engineering,** University of Michigan
Cumulative GPA of 6.87 / 9.0

2001-2005 **B.S.E. in Aerospace Engineering**, University of Michigan
B.S.E. in Mechanical Engineering, University of Michigan
Cumulative GPA of 3.69 / 4.0

EXPERIENCE

2006 - present **Research Assistant**, Center for Intelligent Maintenance Systems Ann Arbor, MI

- Worked with General Electric and BorgWarner on projects regarding machine monitoring and condition-based maintenance
- Collaborated with TU Aachen and Abitibi Consolidated on a project with McKinsey & Company regarding improved ways to evaluate a company's maintenance and performance reliability
- Presented to industrial forum about research progress every 6 months

2006 - present **Research Assistant**, S.M. Wu Manufacturing Research Center Ann Arbor, MI

- Developed methods for real-time detection of a peak in a noisy, non-stationary signal
- Researched and applied methods for sensor fusion to estimate tool wear and detect tool breakage
- Performed signal filtering, time-frequency signal processing, and time-series signal analysis

2005 **Internship**, United States Army TARDEC Warren, MI

- Conducted market research for product feasibility and cost
- Evaluated test reports to determine whether contract requirements were met
- Composed reports on past and current mine/IED diffusion technology

ME Machine Shop Assistant, University of Michigan Ann Arbor, MI

2004 **Internship**, United States Army TARDEC Warren, MI

- Created virtual environment for 3-D vehicle motion simulator

UROP Peer Advisor, University of Michigan Ann Arbor, MI

- Organized, advised, and conducted meetings with and for incoming undergraduates to assist them in obtaining and successfully completing a research project

2003 **UROP Peer Advisor**, University of Michigan Ann Arbor, MI

Solar Car Team Member, University of Michigan Ann Arbor, MI

PAPERS

2008 Brzezinski, A. J., Wang, Y., Choi, D.K., Qiao, X., "Feature-based Tool Condition Monitoring in a Gear Shaving Application," Submitted to *2008 ASME International Conference on Manufacturing Science and Engineering.*

2008 Brzezinski, A. J., Li, L., Qiao, X., Ni, J., "A New Method for Grinder Dressing Fault Mitigation Using Real Time Peak Detection," Submitted to *International Journal of Advanced Manufacturing Technology.*

2008 Brzezinski, A. J., Li, L., Qiao, X., Ni, J., "Real-Time Peak Detection in a Non-Stationary Noisy Signal," Accepted for publication in proceedings of *2008 International Conference on Automation, Robotics and Control Systems.*

SKILLS

Programming Languages: MATLAB, LabView, C/C++, Simulink, HTML, XML

Operating Systems: Windows 2000/XP/VISTA, Mac OS X, Linux

Software Applications: Unigraphics, ProEngineer, SolidWorks

AWARDS AND HONOR SOCIETIES

2003 Admittance into Tau Beta Pi Engineering Honor Society

2002 Recipient of William J. Branstrom Freshman Prize

2002 Admittance into Phi Kappa Phi Honor Society

GRADUATE COURSEWORK

Dynamics
Astrodynamics; Intermediate Dynamics; Structural Dynamics

Mathematics
Linear Spaces and Matrix Theory, Boundary Value Problems for Partial Differential Equations, Introduction to Probability, Introduction to Complex Variables, Probability and Random Processes

Optimization
Discrete Design Optimization; Flight and Trajectory Optimization

Signal Processing
Digital Signal Processing and Analysis; Time Series Analysis

Systems and Control Theory
Automatic Control; Avionics, Navigation and Guidance of Aerospace Vehicles; Control of Structures and Fluids; Design of Digital Control Systems; Embedded Control Systems; Linear Feedback Control Systems; Linear Systems Theory; Nonlinear Systems and Control

REFERENCES

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Department of Mechanical Engineering
The University of Michigan
Phone: 734-936-2918

*Additional references will be provided upon request