

## CURRICULUM VITA

**NAME:** Albert J. Shih

### DEGREES

Ph.D., Purdue University, West Lafayette, Indiana (1991)  
M.S.M.E., National Cheng Kung University, Tainan, Taiwan (1986)  
B.S.M.E., National Cheng Kung University, Tainan, Taiwan (1984)

### CERTIFICATION

Professional Engineer, State of Indiana (1995-date)

### POSITIONS

2/2007–date: Professor, Biomedical Engineering, University of Michigan, Ann Arbor, Michigan.  
8/2006–date: Professor, Mechanical Engineering, University of Michigan, Ann Arbor, Michigan.  
6/2006–date: Deputy Director, Wu Manufacturing Research Center, Univ. of Michigan Ann Arbor, Michigan.  
1/2003–8/2006: Associate Professor, Mechanical Engineering, University of Michigan.  
8/1998–12/2002: Associate Professor, Department of Mechanical and Aerospace Engineering, North Carolina State University, Raleigh, North Carolina.  
6/1991–8/1998: Cummins Inc., Columbus, Indiana. Senior Engineer, Process Engineering Center, Fuel Systems (1991-1995) and Technical Specialist, Cummins Technical Center (1995-1998)  
8/1993–5/1995: Adjunct Professor, Indiana University Purdue University Columbus, Columbus, Indiana.  
8/1989–6/1991: Graduate Teaching Assistant, Purdue University, West Lafayette, Indiana.  
6/1986–6/1991: Graduate Research Assistant, Engineering Research Center for Intelligent Manufacturing Systems, Purdue University, West Lafayette, Indiana.

### RESEARCH

#### Patents and Invention Disclosure

Patent awarded:

1. A.J. Shih and T.M. Yonushonis, "High infeed rate method for grinding ceramic workpiece with silicon carbide grinding wheels", US Patent Number 6,220,933, Apr. 24, 2001.
2. A.J. Shih, M.B. Grant and T.M. Yonushonis, "Constant force truing and dressing apparatus and method," US Patent Number 6,113,474, Sep. 5, 2000.
3. A.J. Shih and T.M. Yonushonis, "High infeed rate method for grinding ceramic workpiece with silicon carbide grinding wheels" US Patent Number 6,030,277, Feb. 29, 2000.
4. A.J. Shih, "Centerless Grinding Machine with Optimal Regulating Wheel Truing and Dressing," US Patent Number 5,928,065, July 27, 1999.
5. A.J. Shih, E.J. Cookson "Active Filtration of Airborne Biological and Chemical Agents and Diesel Particulates using Heated Porous Foam Filters," 7,083,663, Aug 1, 2006.

Pending:

- "Surgical Instrument and Method for Use Thereof," A.J. Shih, J.D. Geiger, A. Advincular, W. Roberts, and K. Pipe (submitted, Jan 2007, UM File No. 3137)
- "Two-Stage Hydraulic Regenerative Braking for a Bike," D. Swain, A.J. Shih, F. Mauer, J. Moore (submitted, Nov. 2006, UM File: 3252)

Invention disclosures:

- Pathology Sample Management System (with Drs. Jeffrey Myers, Peter Lucas, and Scott Miller, UM File 3745) [May 2007]
- Injection Device for Prostate Seed Implants (with Dr. Patrick William McLaughlin, UM File No. 3700) [March 2007]
- Multi-Biopsy Needle for Prostate Cancer (with Dr. Patrick William McLaughlin, UM File No. 3691) [March 2007]
- Trocar Improvements - Anchoring System, Adjustability, Improved Seal Design (with Dr. James Geiger, UM File No. 3497) [April 2006]

- Adapted power mobility units for patient transportation: portable fuel cell/adapted battery units (with Dr. Patrick Brophy of UM Medical Center, UM File No. 3124) [April 2005]
- Laparoscopic Surgical Instrument for Use in Pyloromyotomies (UM File No. 3052) [February 2005]
- Pre-turbocharging Catalyzed Porous Metal Foam Filter for Diesel Particulates Treatment (UM File No. 2924) [October 2004]

## Publications

### Refereed Journal Papers:

1. C. C. Kao, J. Tao, A. J. Shih, "Near Dry Electrical Discharge Machining," *International Journal of Machine Tools and Manufacture*, in press.
2. R. Li, A. J. Shih, "Tool Temperature in Titanium Drilling," *ASME Journal of Manufacturing Science and Engineering*, in press.
3. R. Li, L. Riestler, T. R. Watkins, P. J. Blau, A. J. Shih, "Metallurgical Analysis and Nanoindentation Characterization of Ti-6Al-4V Workpiece and Chips in High Throughput Drilling," *Materials Science and Engineering: A*, in press.
4. R. Li, A. J. Shih, "Spiral Point Drill Temperature and Stress in High-Throughput Drilling of Titanium," *International Journal of Machine Tools and Manufacture*, in press.
5. S. F. Miller, A. J. Shih (2007) "Thermo-Mechanical Finite Element Modeling of the Friction Drilling Process," *ASME Journal of Manufacturing Science and Engineering*, in press.
6. R. Li, A. J. Shih (2007) "Finite Element Modeling of High-Throughput Drilling of Ti-6Al-4V," *Transactions of NAMRI/SME*, pp. 73-80.
7. M. W. Chastagner, A. J. Shih (2007) "Abrasive Jet Machining for Edge Generation," *Transactions of NAMRI/SME*, pp. 359-366.
8. C.-H. Huang, L.-C. Jan, R. Li, A. J. Shih (2007) "A Three-Dimensional Inverse Problem in Estimating the Applied Heat Flux of a Titanium Drilling -- Theoretical and Experimental Studies," *International Journal of Heat and Mass Transfer*, Vol. 50, pp. 3265-3277.
9. S.G. Arul, T. Pan, W.J. Schwartz, A. J. Shih, P.K. Malick, S. F. Miller (2007) "Effects of Surface Treatment (Lubricant) on Spot Friction Welded Joints Made of 6111-T4 Aluminum Sheets," *SAE Transactions*, SAE 2007-01-1706.
10. S.F. Miller, P.J. Blau, A.J. Shih (2007) "Tool Wear in Friction Drilling," *International Journal of Machine Tools and Manufacture*, Vol. 47, pp. 1636-1645.
11. D. J. Johnson, R. Warner, A. J. Shih (2007) "Surface Roughness and Material Removal Rate in Machining Using Microorganisms," *ASME Journal of Manufacturing Science and Engineering*, Vol. 129, pp. 223-227.
12. Y. Y. Zhou, G. S. Lin, A. J. Shih, S. J. Hu (2007) "A Micro-scale Model for Predicting Contact Resistance between Bipolar Plate and Gas Diffusion Layer in PEM Fuel Cells," *Journal of Power Sources*, Vol. 163, pp. 777-783.
13. R. Li, P. Hegde, A. J. Shih (2007) "High Throughput Drilling of Titanium Alloys," *International Journal of Machine Tools and Manufacture*, Vol. 47, pp. 63-74.
14. Z. Huang, A. J. Shih, J. Ni (2006) "Laser Interferometry Hologram Registration for Three-Dimensional Precision Measurements," *ASME Journal of Manufacturing Science and Engineering*, Vol. 128, pp. 1006-1013.
15. A.J. Shih, Z. Huang (2006) "Three Dimensional Optical Measurements of Porous Foams," *ASME Journal of Manufacturing Science and Engineering*, Vol. 128, pp. 951-959.
16. Z. Huang, A. J. Shih, J. Ni (2006) "Phase Unwrapping for Large Depth-of-Field 3D Laser Holographic Interferometry Measurement of Laterally Discontinuous Surfaces," *Measurement Science and Technology*, Vol. 17, pp. 3110-3119.
17. C.C. Kao, A.J. Shih (2006) "Sub-nanosecond Monitoring of Micro-Hole Electrical Discharge Machining Pulses and Modeling of Discharge Ringing," *International Journal of Machine Tools and Manufacture*, Vol. 46, pp. 1996-2008.
18. E.J. Cookson, D.E. Floyd, A.J. Shih (2006) "Design and Analysis of Metal Foam Electrical Resistance Heater," *International Journal of Mechanical Sciences*, Vol. 48, pp. 1314-1322.
19. S.F. Miller, R. Li, H. Wang, A.J. Shih (2006) "Experimental and Numerical Analysis of the Friction Drilling Process," *ASME Journal of Manufacturing Science and Engineering*, Vol. 128, pp. 802-810.
20. S.F. Miller, J. Tao, A.J. Shih (2006) "Friction Drilling of Cast Metals," *International Journal of Machine Tools and Manufacture*, Vol. 46, pp. 1526-1535.

21. R.K. Guduru, K.A. Darling, R.O. Scattergood, C.C. Koch, K.L. Murty, M. Bakkal, A.J. Shih (2006) "Mechanical Properties of a Bulk Metallic Glass Obtained Using Shear Punch Tests," *Intermetallics*, Vol. 14, 1411-1416.
22. C.C. Kao, J. Tao, S. Lee, A.J. Shih (2006) "Dry Wire Electrical Discharge Machining of Thin Workpiece," *Transactions of NAMRI/SME*, Vol. 34, pp. 253-260.
23. R. Li, A.J. Shih (2006) "Finite Element Modeling of 3D Turning of Titanium," *International Journal of Advanced Manufacturing Technology*, Vol. 29, pp. 253-261.
24. L.M. Xu, B. Shen, A. J. Shih (2006) "Vitreous Bond Silicon Carbide Wheel for Grinding of Silicon Nitride," *International Journal of Machine Tools and Manufacture*, Vol. 46, pp. 631-639.
25. J. Luo, H. Ding, A.J. Shih (2005) "Induction-Heated Tool Machining of Elastomers - Part I: Finite Difference Thermal Modeling and Experimental Validation," *Machining Science and Technology*, Vol. 9, pp. 547-565.
26. J. Luo, H. Ding, A.J. Shih (2005) "Induction-Heated Tool Machining of Elastomers - Part II: Chip Morphology, Cutting Forces, and Machined Surfaces," *Machining Science and Technology*, Vol. 9, pp. 567-588.
27. S.F. Miller, P.J. Blau, A.J. Shih (2005) "Microstructural Alterations Associated with Friction Drilling of Steel, Aluminum, and Titanium," *Journal of Materials Engineering and Performance*, Vol. 14, pp. 647-653.
28. S.F. Miller, J. Qu, C.C. Kao, A.J. Shih (2005) "Investigation of Wire Electrical Discharge Machining of Thin Cross-Sections and Compliant Mechanisms," *International Journal of Machine Tools and Manufacture*, Vol. 45, pp. 1717-1725.
29. J. Qu, A. J. Shih, R.O. Scattergood, J. Luo (2005) "Abrasive Micro-Blasting of Surface Layers of Electrical Discharge Machined WC-Co Composite," *Journal of Materials Processing Technology*, Vol. 166, pp. 440-448.
30. R. L. Lemaster, A. J. Shih, Z. Yu (2005) "Blasting and Erosion Wear of Wood using Sodium Bicarbonate and Plastic Media," *Forest Products Journal*, Vol. 55, pp. 59-64.
31. J. Luo, A. J. Shih (2005) "Inverse Heat Transfer Solution of the Induction Heat Flux," *ASME Journal of Manufacturing Science and Engineering*, Vol. 127, pp. 555-563.
32. J. Kong, M. Hendrichsen, A. J. Shih (2005) "Infrared Thermometry Measurement of Temperature Distribution in Microwave Regeneration of Diesel Particulate Filters," *International Journal of Engine Research*, Vol. 6, pp. 61-71.
33. M. Bakkal, S.B. McSapdden, A.J. Shih, R.O. Scattergood (2005) "Light Emission, Chip Morphology, and Burr Formation in Drilling the Bulk Metallic Glass," *International Journal of Machine Tools and Manufacture*, Vol. 45, pp. 741-752.
34. M. Bakkal, S.B. McSapdden, A.J. Shih, R.O. Scattergood (2005) "Thrust Force, Torque, and Tool Wear in Drilling the Bulk Metallic Glass," *International Journal of Machine Tools and Manufacture*, Vol. 45, pp. 863-872.
35. C. W. Hardin, A. J. Shih, R. L. Lemaster (2004) "Diamond Wire Machining of Wood," *Forest Products Journal*, Vol. 54, pp. 50-55.
36. A. J. Shih, R. C. McCall (2004) "Wear and Kinematics of Tool Blades for Scrap Tire Shredding," *Machining Science and Technology*, Vol. 8, pp 193-210.
37. M. Bakkal, A. J. Shih, R. O. Scattergood (2004) "Chip Formation, Cutting Forces, and Tool Wear in Turning of Zr-Based Bulk Metallic Glass," *International Journal of Machine Tools and Manufacture*, Vol. 44, pp. 915-925.
38. C. W. Hardin, J. Qu, A. J. Shih (2004) "Fixed Abrasive Diamond Wire Saw Slicing of Single Crystal SiC Wafers," *Materials and Manufacturing Processes*, Vol. 19, pp. 355-367.
39. J. Kong, A. J. Shih (2004) "Infrared thermometry for diesel exhaust aftertreatment filter temperature measurement," *SAE Transactions*, SAE 2004-01-0962.
40. J. S. Strenkowski, C. C. Hsieh, A. J. Shih (2004) "An Analytical Finite Element Technique for Predicting Thrust Force and Torque in Drilling," *International Journal of Machine Tools and Manufacture*, Vol. 44, pp. 1413-1421.
41. A. J. Shih, M. A. Lewis, J. S. Strenkowski (2004) "End Milling of Elastomers – Fixture Design and Tool Effectiveness for Material Removal," *ASME Journal of Manufacturing Science and Engineering*, Vol. 126, pp. 115-123.
42. A. J. Shih, M. A. Lewis, J. Luo, J. S. Strenkowski (2004) "Chip Morphology and Forces in End Milling of Elastomers," *ASME Journal of Manufacturing Science and Engineering*, Vol. 126, pp. 124-130.
43. S. F. Miller, A. J. Shih, J. Qu (2004) "Investigation of the Spark Cycle on Material Removal Rate in Wire Electrical Discharge Machining," *International Journal of Machine Tools and Manufacture*, Vol. 44, pp. 391-400.

44. M. Bakkal, A. J. Shih, R. O. Scattergood, C. T. Liu (2004) "Machining of a Zr-Ti-Al-Cu-Ni Metallic Glass," *Scripta Materialia*, Vol. 50, pp. 583-588.
45. M. Bakkal, C. T. Liu, T. Watkins, R. O. Scattergood, A. J. Shih (2004) "Oxidation and Crystallization of Zr-Based Bulk Metallic Glass due to Machining," *Intermetallics*, Vol. 12, pp. 195-204.
46. M. G. Garrell, B. M. Ma, A. J. Shih, E. Lara-Curzio, R. O. Scattergood (2003) "Mechanical Properties of PPS Bonded Nd-Fe-B Permanent Magnets," *Materials Science and Engineering: A*, Vol. 359, pp. 375-383.
47. J. Qu, A. J. Shih (2003) "Analytical Surface Roughness Parameters of an Ideal Profile Consisting of Elliptical or Circular Arcs," *Machining Science and Engineering*, Vol. 7, pp. 281-294.
48. A. J. Shih, A. C. Curry, R. O. Scattergood, T. M. Yonushonis, D. J. Gust, M. B. Grant, S. B. McSpadden, T. Watkins (2003) "Grinding of Zirconia using the Dense Vitreous Bond Silicon Carbide Wheel," *ASME Journal of Manufacturing Science and Engineering*, Vol. 125, pp. 297-303.
49. B. J. Boothe, A. J. Shih, J. Kong, W. L. Roberts (2003) "Goniometric Characteristics of Optical Fibers for Temperature Measurement in Diesel Engine Exhaust Filters," *Measurement Science and Technology*, Vol. 14, pp. 563-572.
50. A. C. Curry, A. J. Shih, R. O. Scattergood, J. Kong, S. B. McSpadden (2003) "Grinding Temperature Measurements in MgO PSZ Using Infrared Spectrometry," *J. Am. Ceram. Soc.*, Vol. 86, pp. 333-341.
51. W. I. Clark, A. J. Shih, C. W. Hardin, R. L. Lemaster, S. B. McSpadden (2003) "Fixed Abrasive Diamond Wire Machining – Part I: Process Monitoring and Wire Geometry and Tension," *International Journal of Machine Tools and Manufacture*, Vol. 43, pp. 523-532.
52. W. I. Clark, A. J. Shih, R. L. Lemaster, S. B. McSpadden (2003) "Fixed Abrasive Diamond Wire Machining – Part II: Experiment Design and Results," *International Journal of Machine Tools and Manufacture*, Vol. 43, pp. 533-542.
53. M. G. Garrell, A. J. Shih, E. Lara-Curzio, R. O. Scattergood (2003) "Finite-Element Analysis of Stress-Concentration in ASTM D638 Tensile Test Specimens," *Journal of Testing and Evaluation*, Vol. 31, pp. 52-57.
54. M. G. Garrell, A. J. Shih, B. M. Ma, E. Lara-Curzio, R. O. Scattergood (2003) "Mechanical Properties of Nylon Bonded Nd-Fe-B Permanent Magnets," *Journal of Magnetism and Magnetic Materials*, Vol. 257, pp. 32-43.
55. J. Qu, L. Reister, A. J. Shih, R. O. Scattergood, E. Lara-Curzio (2003) "Nanoindentation Characterization of Surface Layers of Electrical Discharge Machined WC-Co," *Materials Science and Engineering: A*, Vol. 344, pp. 125-131.
56. B. K. Rhoney, A. J. Shih, R. O. Scattergood, J. L. Akemon, D. J. Gust, M. B. Grant (2002) "Wire Electrical Discharge Machining of Metal Bond Diamond Wheels for Ceramic Grinding," *International Journal of Machine Tool and Manufacture*, Vol. 42, pp. 1355-1362.
57. J. Qu, A. J. Shih, R. O. Scattergood (2002) "Development of the Cylindrical Wire Electrical Discharge Machining Process: Part I: Concept, Design, and Material Removal Rate," *ASME Journal of Manufacturing Science and Engineering*, Vol. 124, No. 3, pp. 702-707.
58. J. Qu, A. J. Shih, R. O. Scattergood (2002) "Development of the Cylindrical Wire Electrical Discharge Machining Process: Part II: Surface Integrity and Roundness," *ASME Journal of Manufacturing Science and Engineering*, Vol. 124, No. 3, pp. 708-714.
59. B. K. Rhoney, A. J. Shih, R. O. Scattergood, R. Ott, S. B. McSpadden (2002) "Wear Mechanism of Metal Bond Diamond Wheels Trued by Wire Electrical Discharge Machining," *Wear*, Vol. 252, pp. 644-653.
60. J. S. Strenkowski, A. J. Shih, J. C. Lin (2002) "An Analytical Finite Element Model for Predicting Three-Dimensional Tool Forces and Chip Flow," *International Journal of Machine Tools and Manufacture*, Vol. 42, pp. 723-731.
61. A. J. Shih, H. S. Yan (2002) "Synthesis of a Single-Loop, Overconstrained Spatial 6R Mechanism for Two-Position Cylindrical Rigid Body Guidance," *Mechanism and Machine Theory*, Vol. 37, pp. 61-73.
62. A. J. Shih, J. L. Akemon (2001) "Wear of the Blade Diamond Tools in Truing Vitreous Bond Grinding Wheels. Part I – Wear Measurement and Results," *Wear*, Vol. 250, pp. 587-592.
63. A. J. Shih, W. I. Clark, J. L. Akemon (2001) "Wear of the Blade Diamond Tools in Truing Vitreous Bond Grinding Wheels. Part II – Truing and Grinding Forces and Wear Mechanism," *Wear*, Vol. 250, pp. 593-603.
64. A. J. Shih (2001) "A New Regulating Wheel Truing Method for Through-Feed Centerless Grinding," *ASME Journal of Manufacturing Science and Engineering*, Vol. 123, No. 2, pp. 319-324.
65. A. J. Shih (2000) "An Experimental Investigation of Rotary Truing and Dressing of Vitreous Bond Wheels for Ceramic Grinding," *International Journal of Machine Tools and Manufacture*, Vol. 40, pp. 1755-1774.

66. A. J. Shih, M. B. Grant, T. M. Yonushonis, T. O. Morris, S. B. McSpadden (2000) "High speed and High Material Removal Rate Grinding of Ceramics Using the Vitreous Bond CBN wheel," *Machining Science and Technology*, Vol. 4, No. 1, pp. 43-58.
67. M. Tricard, D. J. Gust, A. J. Shih (1999) "Precision Thru-feed Centerless Grinding of Zirconia," *Machining Science and Technology*, Vol. 3, No. 2, pp. 201-219.
68. A. J. Shih, N. L. Lee, (1999) "Precision Cylindrical Face Grinding," *Precision Engineering*, Vol. 23, No. 3, pp. 177-184.
69. J. F. Tu, M. Corless, M. J. Gehrich, A. J. Shih (1998) "Experimental Study of a Precision Hydrodynamic Wheel Spindle for Submicron Cylindrical Grinding," *Precision Engineering*, Vol. 22, No. 1, pp. 43-57.
70. A. J. Shih (1998) "Rotary Truing of the Vitreous Bond Diamond Grinding Wheels using Metal Bond Diamond Disks," *Machining Science and Technology*, Vol. 2, pp. 13-28.
71. A. J. Shih, T.M Yonushonis, M.B. Grant, T.O. Morris, S.B. McSpadden (1998) "Vitreous Bond CBN Wheel for High Speed Grinding of Ceramic and M2 Steel," *Transactions of NAMRI/SME*, Vol. 26, pp. 195-200.
72. A. J. Shih (1996) "Finite Element Analysis of Orthogonal Metal Cutting Mechanics," *International Journal of Machine Tools and Manufacture*, Vol. 36, pp. 255-273.
73. A. J. Shih (1996) "Finite Element Analysis of the Rake Angle Effects in Orthogonal Metal Cutting," *International Journal of Mechanical Sciences*, Vol. 38, pp. 1-17.
74. A. J. Shih (1995) "Finite Element Simulation of Orthogonal Metal Cutting," *ASME Journal of Engineering for Industry*, Vol. 117, pp. 84-93.
75. A. J. Shih (1993) "Kinematics of Cycloidal Rotary Internal Combustion Engine Mechanism," *ASME Journal of Mechanical Design*, Vol. 115, pp. 953-959.
76. A. J. Shih (1993) "Comparison and Analysis of the Epicycloidal and Hypocycloidal Rotary Engine Mechanism," *ASME Journal of Mechanical Design*, Vol. 115, pp. 960-966.
77. A. J. Shih, H. T. Yang (1993) "Experimental and Finite Element Predictions of Residual Stresses due to Orthogonal Metal Cutting," *International Journal for Numerical Method in Engineering*, Vol. 36, pp. 1487-1507.
78. C. Kao, A.J. Shih (1992) "A Radial Method for Mechanism Optimal Design," *Engineering Optimization*, Vol. 20, pp. 179-186.
79. A. J. Shih, H. T. Yang (1991) "Experimental and Finite Element Simulation Methods for Rate-Dependent Metal Forming Processes," *International Journal for Numerical Method in Engineering*, Vol. 31, pp. 345-367.
80. H.T. Yang, M. Heinstejn, A.J. Shih (1989) "Adaptive 2D Finite Element Simulation of Metal Forming Processes," *International Journal for Numerical Methods in Engineering*, Vol. 28, pp. 1409-1428.
81. W. M. Hwang, A. J. Shih (1987) "Optimal Synthesis of Suspension Mechanism with Variable Leverage Ratio," *Journal of the Chinese Society of Mechanical Engineers*, Vol. 8, pp. 43-50.
82. W. M. Hwang, A. J. Shih (1986) "A Design for Automatic Machining of the Die for Self-Tapping Screw," *Journal of the Chinese Society of Mechanical Engineers*, Vol. 7, pp. 109-113.

#### **Pending (submitted)**

- Y. Y. Zhou, G. S. Lin, A. J. Shih, S. J. Hu, "Multi-Physics Modeling of Assembly Pressure Effects on PEM Fuel Cell Performance," *ASME Journal of Fuel Cell Science and Technology*.
- J. Tao, A. J. Shih, J. Ni, "Near-Dry EDM Milling of Mirror-Like Surface Finish," *International Journal of Electrical Machining*.
- Z. Parlar, M. Bakkal, A. J. Shih, "Sliding Tribological Characteristics of Zr-based Bulk Metallic Glass," *Intermetallics*.
- J. Tao, A. J. Shih, J. Ni, "Experimental Study of the Dry and Near-Dry Electrical Discharge Milling Processes," *ASME Journal of Manufacturing Science and Engineering*.
- Z. Huang, A. J. Shih, J. Ni, "Quantitative Evaluation of Powder Spray Effects on Stereovision Measurements," *Measurement Science and Technology*.
- C. C. Kao, A. J. Shih, "Form Measurements of Micro-Holes," *Measurement Science and Technology*.
- B. Shen, A. J. Shih, S. Tung "Application of Nanofluids in minimum quantity Lubrication Grinding," *STLE Tribology Transactions*.

#### **Refereed Conference Papers:**

1. M.W. Chastagner, S.F. Miller, A.J. Shih (2007) "Tissue Joining Using the Electrosurgical Method." Proceedings of the 2007 International Manufacturing Science and Engineering Conference MSEC2007, October 15-17, 2007, Atlanta, Georgia, USA.

2. R.E. Dodde, S.F. Miller, A.J. Shih (2007) "Thermal-Electric Finite Element Analysis of Electrosurgical Cautery Process," Proceedings of the 2007 International Manufacturing Science and Engineering Conference MSEC2007, October 15-17, 2007, Atlanta, Georgia, USA.
3. C.C. Kao, S.F. Miller, A.J. Shih (2007) "Fuzzy Logic Control System for Micro-Hole Electrical Discharge Machining," Proceedings of the 2007 International Manufacturing Science and Engineering Conference MSEC2007, October 15-17, 2007, Atlanta, Georgia, USA.
4. B. Shen, A.J. Shih (2007) "Thermocouple Fixturing Method for Grinding Temperature Measurement," International Symposium on Advanced Abrasive Technology 2007, Dearborn, MI, Sep. 26-28, 2007.
5. J. Feng, G.Y. Kim, A.J. Shih, J. Ni (2007) "Investigation of the Micro-end Grinding of Ceramics Using a Sintered Metal-bonded Microgrinding Wheel," International Symposium on Advanced Abrasive Technology 2007, Dearborn, MI, Sep. 26-28, 2007.
6. J. Tao, A.J. Shih (2007) "Dry and Near-Dry Electrical Discharge Milling Processes," 15<sup>th</sup> International International Symposium on Electromachining (ISEM XV), Pittsburgh, Pennsylvania, April 23-27, 2007, pp. 275-280.
7. C.C. Kao, J. Tao, A.J. Shih (2007) "Water Mist Near Dry Wire and Drilling Electrical Discharge Machining and Gap Distance Modeling," 15<sup>th</sup> International International Symposium on Electromachining (ISEM XV), Pittsburgh, Pennsylvania, April 23-27, 2007, pp. 281-286.
8. Z. Huang, A. J. Shih, J. Ni (2007) "Three Dimensional Optical Measurements for Automotive Applications," Internatoinal Conference on Competitive Manufacturing COMA'07, February 2007, Stellenbosch University, South Africa.
9. T.D. Marusich, S. Usui, R. Aphale, N. Saini, R. Li, A.J. Shih (2006) "Three-Dimensional Finite Element Modeling of Drilling Processes," ASME Manufacturing Science and Engineering Conference, Oct. 8-12, Ypsilanti, Michigan.
10. S.F. Miller, A.J. Shih (2006) "Friction Drilling – A Chipless Hole-Making Process," ASME Manufacturing Science and Engineering Conference, Oct. 8-12, Ypsilanti, Michigan.
11. Z. Huang, A.J. Shih, J. Ni (2006) "Laser Interferometry Hologram Registration for Three-Dimensional Precision Measurements," ASME Manufacturing Science and Engineering Conference, Oct. 8-12, Ypsilanti, Michigan.
12. A.J. Shih (2006) "Biomedical Manufacturing – A New Frontier of Manufacturing Research," ASME Manufacturing Science and Engineering Conference, Oct. 8-12, Ypsilanti, Michigan.
13. J. Tao, C.C. Kao, A.J. Shih (2006) "Near Dry Electrical Discharge Machining," 7th International Conference on Frontiers of Design and Manufacturing and 7<sup>th</sup> S. M. Wu Symposium on Manufacturing Sciences, June 21-24, Guangzhou, China.
14. R. Li, A.J. Shih (2006) "High throughput drilling of Ti alloys," 7th International Conference on Frontiers of Design and Manufacturing and 7<sup>th</sup> S. M. Wu Symposium on Manufacturing Sciences, June 21-24, Guangzhou, China.
15. Z. Huang, A. J. Shih, J. Ni (2005) "Quantitative Evaluation of Powder Spray Effects on Three-Dimensional Stereovision Measurements of Machined Components," CIRP-Sponsored 3rd International Conference on Reconfigurable Manufacturing, Ann Arbor, Michigan, May 9-12, 2005.
16. S.F. Miller, J. Qu, E. Shi, C.C. Kao, A.J. Shih (2004) "Investigation of Wire Electrical Discharge Machining of Thin Cross-Sections and Compliant Mechanisms," ASME IMECE, Anaheim, CA, Nov. 13-19, 2004.
17. R. Li, A.J. Shih (2004) "Finite Element Modeling of 3D Turning of Titanium," ASME IMECE, Anaheim, CA, Nov. 13-19, 2004.
18. J. Kong, A.J. Shih (2004) "Infrared Thermometry for Diesel Exhaust Aftertreatment Filter Temperature Measurement," 2004 SAE World Congress, March 8-11, Detroit, Michigan.
19. C. W. Hardin, J. Qu, A. J. Shih (2003) "Fixed Abrasive Diamond Wire Saw Slicing of Single Crystal SiC Wafers," ASME IMECE, Washington, D.C., Nov. 2003.
20. S. F. Miller, A. J. Shih (2003) "Investigation the Effect of Spark Cycle on the Material Removal Rate in Wire Electrical Discharge Machining," ASME IMECE, Washington, D.C., Nov. 2003.
21. J. Kong, M. Bakkal, S. F. Miller, A. J. Shih (2003) "Temperature Measurement in Ceramic Grinding, Machining of Bulk Metallic Glass, and Electrical Discharge Machining," NSF Workshop on Research Needs in Thermal Aspects of Material Removal Processes, Stillwater, Okalahoma, June 2003.
22. M. G. Garrell, B. M. Ma, E. Lara-Curzio, A. J. Shih, R. O. Scattergood (2002) "Mechanical Properties of Injection Molded Nd-Fe-B Permanent Magnets," *Intermag Europe 2002*, April 28 – May 2, 2002, Amsterdam, Netherlands.
23. J. Qu, A.J. Shih, R.O. Scattergood (2001) "Development of the Cylindrical Wire EDM Process," Symposium of Nontraditional Manufacturing Research and Applications, 2001 ASME IMECE New York, NY.
24. A.J. Shih, J.L. Akemon (2001) "Wear of the Blade Diamond Tools in Truing Vitreous Bond Grinding Wheels. Part I – Wear Measurement and Results," 2001 *Wear of Materials*, April 22-26, 2001, Vancouver BC, Canada.

25. A.J. Shih, W.I. Clark, J.L. Akemon (2001) "Wear of the Blade Diamond Tools in Truing Vitreous Bond Grinding Wheels. Part II – Truing and Grinding Forces and Wear Mechanism," *2001 Wear of Materials*, April 22-26, 2001, Vancouver BC, Canada.
26. D.J. Gust, A.J. Shih, M. Tricard, K. Subramanian (1996) "An Approach for Thru-Feed Grinding of Ceramic," *Symposium on Advanced Machining and Finishing Processes for Ceramics, Composites, and High Temperature Alloys*, ASME World Congress & Expo., Atlanta, GA.
27. A.J. Shih (1993) "Finite Element Analysis of the Rake Angle Effects in Orthogonal Metal Cutting," K. F. Ehmann, Ed., *Manufacturing Science and Engineering*, ASME PED-Vol. 64, pp. 475-483.
28. A.J. Shih, H.T. Yang S. Chandrasekar (1990) "Experimental and Finite Element Simulation of Metal Cutting Process with Strain Rate and Temperature Effects," Klamecki, B.E., and K. J. Weinmann, Ed., *Fundamental Issues in Machining*, ASME PED-Vol. 43, pp. 11-24.
29. K.F. Wang, A.J. Shih, M. Heinstejn, H.T. Yang, S. Chandrasekar (1990) "Finite Element Analysis of Heat Treatment, Metal Cutting and Forming," International Conference on Adv. in Structural Testing, Analysis, and Design, Bangalore, India.
30. W.M. Hwang, A.J. Shih (1985) "Analysis and Optimal Synthesis of Rear Suspension Mechanisms with Single Shock Absorber for Motorcycle," Proceedings of the 2nd National Conference on Mechanical Engineering, Kaoshiung, Taiwan.
31. A.J. Shih, W.M. Hwang (1985) "A Design for Automatic Manufacture of Self-Tapping Screw Dies," Proceedings of the 2nd National Conference on Mechanical Engineering, Kaoshiung, Taiwan.

#### **Submitted**

- B. Shen, A. J. Shih, S. Tung (2007) "Application of Nanofluids in minimum quantity Lubrication Grinding," ASME/STLE International Joint Tribology Conference, Oct 22-24, San Diego, California, USA.
- R.E. Dodde, A. P. Advincula (2007) "A Novel Technique for Demonstrating the Real-Time Sub-Surface Tissue Thermal Profile of Two Energized Surgical Instruments," AAGL 36<sup>th</sup> Annual Meeting, Nov. 14-17, Washington, D.C., USA.

#### **Other Conference Papers:**

1. S. F. Miller, H.-Y. Kuo, K. Meyer, K. Park, A. J. Shih, J. Ni (2007) "High Performance Machining Research at the S.M. Wu Manufacturing Research Center: A Review," The Proceedings of OMNI-CNC 2007 Annual Meeting, Nagano, Japan, July 2007.
2. A.F. Bastawros, A. Chanda, A.J. Shih (2006) "Analysis of Surface Waviness during Wire Saw Cutting of Ductile Materials," *2006 NSF Design, Service and Manufacturing Grantees and Research Conference*, St. Louis, MO, July 24-26, 2006.
3. B. Shen, A.J. Shih, G. Xiao, S. Malkin (2006) "Minimum Quantity Lubrication (MQL) Grinding Using Nanofluids," *2006 NSF Design, Service and Manufacturing Grantees and Research Conference*, St. Louis, MO, July 24-26, 2006.
4. R. Li, J. Qu, A.J. Shih (2005) "Finite Element Modeling of Titanium Machining," Third Wave Systems User Workshop, Dearborn, Michigan, May 4, 2005.
5. J.S. Strenkowski, J. Yan, J. Luo, A.J. Shih (2005) "Machining of Elastomers – Finite Element Modeling and Induction Heated Tool," *2005 NSF Design, Service and Manufacturing Grantees and Research Conference*, Scottsdale, AZ, Jan. 3-6, 2005.
6. A.F. Bastawros, A. Chanda, A.J. Shih (2005) "Precision Wire Saw Slicing of Semiconductor Wafers," *2005 NSF Design, Service and Manufacturing Grantees and Research Conference*, Scottsdale, AZ, Jan. 3-6, 2005.
7. N. Gallego, A.J. Shih, D. P. Stinton, E. Jih (2004) "Graphite foam for cooling of automotive power electronics," Carbon 2004 Conference, July 11-16, Providence, RI.
8. J. Luo, A. J. Shih (2004) "Machining of Elastomers," 6<sup>th</sup> International Conference on Frontiers of Design and Manufacturing and 6<sup>th</sup> S. M. Wu Symposium on Manufacturing Sciences, June 21-23, Xi'an, China.
9. Z. Huang, A. J. Shih, J. Ni (2004) "Reconfigurable 3D Precision Optical Measurements," 6<sup>th</sup> International Conference on Frontiers of Design and Manufacturing and 6<sup>th</sup> S.M. Wu Symposium on Manufacturing Sciences, June 21-23, Xi'an, China.
10. J. Qu, P. J. Blau, A. J. Shih, S. B. McSpadden, G. M. Pharr, J. I. Jang (2004) "Scanning Acoustic Microscopy for Non-Destructive Evaluation of Subsurface Characteristics." 6<sup>th</sup> International Conference on Frontiers of Design and Manufacturing and 6<sup>th</sup> S.M. Wu Symposium on Manufacturing Sciences, June 21-23, Xi'an, China.

11. S.B. White, D.D. Johnson, K. Pipe, N. Gallego, A.J. Shih, D. P. Stinton, E. Jih (2004) "Carbon Foam for Thermal Management of Power Electronics," 8<sup>th</sup> IEEE Workshop on Power Electronics in Transportation, Oct. 21-22, 2004, Detroit, MI.
12. J. S. Strenkowski, A.J. Shih, J. Luo, J. Yan (2004) "The Use of Induction Heated Tools and Effective Fixture Design for Improving the Machinability of elastomers," 2004 NSF Design, Service and Manufacturing Grantees and Research Conference, Dallas, TX, Jan. 5-8, 2004.
13. S. F. Miller, B. K. Rhoney, A.J. Shih, S. B. McSpadden (2004) "Electrical Discharge Machining of Metal Bond Diamond Wheels for Precision Grinding," 2004 NSF Design, Service and Manufacturing Grantees and Research Conference, Dallas, TX, Jan. 5-8, 2004.
14. J. Kong, M. Bakkal, S. F. Miller, A. J. Shih (2003) "Temperature Measurement in Ceramic Grinding, Machining of Bulk Metallic Glass, and Electrical Discharge Machining," NSF Workshop on Research Needs in Thermal Aspects of Material Removal Processes, Stillwater, Oklahoma, June 2003, pp. 415-424.
15. J. Kong, A.J. Shih, R.O. Scattergood, T.M. Yonushonis, D.J. Gust, M.B. Grant, S.B. McSpadden (2003) "Cost-Effective Form Grinding of Zirconia using Silicon Carbide Wheels and Ceramic Grinding Temperature Measurement," 2003 NSF Design, Service and Manufacturing Grantees and Research Conference, Birmingham, Alabama, Jan. 6-9, 2003.
16. J.S. Strenkowski, A.J. Shih, S. Rodkwan, M.A. Lewis (2003) "Machining of Elastomers – Experimental and Numerical Investigation," 2003 NSF Design, Service and Manufacturing Grantees and Research Conference, Birmingham, Alabama, Jan. 6-9, 2003.
17. W.I. Clark, A.J. Shih, R.L. Lemaster, S.B. McSpadden (2002) "Fixed-Abrasive Diamond Wire Machining," 2002 NSF Design, Service and Manufacturing Grantees and Research Conference, San Juan, Puerto Rico, Jan. 7-10, 2002.
18. J.S. Strenkowski, A.J. Shih, M.A. Lewis, S. Rodkwan, D.R. Poirier (2002) "Machining of Elastomers," 2002 NSF Design, Service and Manufacturing Grantees and Research Conference, San Juan, Puerto Rico, Jan. 7-10, 2002.
19. B.K. Rhoney, A.J. Shih, R.O. Scattergood (2002) "Wire EDM Truing of Metal Bond Diamond Wheels for Precision Ceramic Grinding," 2002 NSF Design, Service and Manufacturing Grantees and Research Conference, San Juan, Puerto Rico, Jan. 7-10, 2002.
20. B.K. Rhoney, A.J. Shih, R.O. Scattergood, J.L. Akemon, D.J. Gust, M.B. Grant (2001) "Wire EDM Truing of Metal Bond Diamond Wheels," 2001 ASPE Annual Meeting, Crystal City, VA.
21. J. Qu, A.J. Shih, R.O. Scattergood, S.B. McSpadden (2001) "Cylindrical Wire Electrical Discharge Machining Process Development," 2001 ASPE Annual Meeting, Crystal City, VA.
22. A.C. Curry, A.J. Shih, R.O. Scattergood, S.B. McSpadden, R.B. Dinwiddie (2001) "Infrared Spectrometry for Grinding Temperature Measurement," 2001 ASPE Annual Meeting, Crystal City, VA.
23. A.J. Shih, T.M. Yonushonis, M.B. Grant, T.O. Morris, S.B. McSpadden (1998) "High speed and high material removal rate grinding of ceramics using the vitreous bond CBN wheel," ASPE 13th Annual Meeting, Oct. 25-30, St. Louis, MO.
24. S.B. McSpadden, T.O. Morris, A.J. Shih (1997) "High Speed Cylindrical Grinding of Heavy Duty Diesel Engine Components," Annual Automotive Technology Development Customers' DOE Coordination Meeting, Dearborn, MI, Oct. 27-30.
25. A.J. Shih, M.B. Grant (1996) "An Investigation of Truing Parameters for Grinding Zirconia," Superabrasive Technology 1996, Lawrence Livermore National Lab., November 7-8, Livermore, CA.
26. A.J. Shih, D.J. Gust, M.B. Grant (1996) "Precision Grinding of Ceramic Diesel Engine Components," ASPE Spring Topical Meeting, Annapolis, MD.
27. P. Vishnupad, Y.C. Shin, A.J. Shih (1995) "Monitoring of an Internal Grinding Process," SME Grinding Conference, Detroit, MI.

## TEACHING

### New/Revised Courses Introduced at Univ. of Michigan:

- ME599 Biomedical Design and Manufacturing (2006 UM CRLT Gilbert Whitaker Teaching Grant)
- ME482 Machining – Newly revised to three credit hours with a lab, new Lab modules with machining modeling; prepare for distance course offering; and writing a textbook.

### Ph.D. Committees Chaired

Current students:

- C.C. Kao
- Matthew Chastagner
- Steve B. White (co-chair with Kevin Pipe)
- Jie Feng (co-chair with Jun Ni)
- Jia Tao (co-chair with Jun Ni)
- Bin Shen
- Yuanyuan Zhou (co-chair with Jack Hu)
- Masa Fujiki (co-chair with Jun Ni)
- Daniel Johnson
- Senthil Arul
- Robert Dodde
- Jason Moore

Graduated:

1. Rui Li (2007, Schneider Electric) “Experimental and Numerical Analysis of High-Throughput Drilling of Titanium Alloys”
2. Zhenhua Huang (2006, Coherix) “Three-Dimensional Laser Holographic Interferometry Measurements”
3. Scott Miller (2006, Univ of Michigan) “Friction Drilling”
4. Jie Luo (2005, Cummins, Solid Oxide Fuel Cell Lab) ”Machining of Elastomers”
5. Mustafa Bakkal (2004, Assistant Professor, Istanbul Technical University, Mechanical Engineering) “Machining of Bulk Metallic Glass”
6. Jian Kong (2003, Ford Motor Company, Scientific Research Lab) “Infrared-Based Temperature Measurement in Ceramics Grinding and Diesel Exhaust Aftertreatment Filters”
7. Jun Qu (2002, Oak Ridge Natl Lab, Metals and Ceramics Division) “Development of Cylindrical Wire Electrical Discharge Machining Process and Investigation of Surface Integrity and Mechanical Property of EDM Surface Layers”

**M.S. Committees Chaired**

Current students:

- Ya-Ni Chen
- Eric Johnson
- Jacob Gee

Graduated:

1. Jason Moore (2007, UM PhD) “Dry Sump Pump Bubble Elimination for Hydraulic Hybrid Vehicle Systems”
2. Waihua Fong (2007, TRW) “Package Design for High Precision Machine Vision Systems”
3. Adrian Vine (2007, OG Technologies) “Application of Design Methodology to the Cooling System of an In-Line Machine Vision System”
4. Daniel Ketchum (2005, GE) “Generation of Micro-Size Conductive Lines Using the Direct Write of Nano-Particles”
5. Robert Dodde (2005, PhD student, University of Michigan) “Sparing of Neurovascular Tissue Utilizing High Thermal Gradients”
6. Daniel J. Johnson (2005, PhD student, University of Michigan) “Surface Effects of Biomachining Pure Copper”
7. Rui Li (2004, Schneider Electric) “Finite Element Modeling of Titanium Turning”
8. Craig W. Hardin (2003, CREE) “Fixed-Abrasive Diamond Wire Saw Slicing of Single Crystal SiC Wafers and Wood”
9. Scott F. Miller (2003, Post doc, University of Michigan) “
10. Edward Cookson (2003, Porvair) “Development of the Metal Foam Electrical Resistance Heater”
11. Mark A. Lewis (2002, Urethane Innovators, Inc.) “End Milling of Elastomers”
12. Monika G. Garrell (2002, Pfizer) “Mechanical Properties of Injection Molded Nd-Fe-B Type Permanent Magnets”
13. Brian J. Boothe (2002, Corsair) “Goniometric Characteristics of Sapphire Optical Fibers Goniometric Characteristics of Sapphire Optical Fibers”

14. William I. Clark (2001, Naval Research Center) "Fixed Abrasive Diamond Wire Saw Machining"
15. Brian K. Rhoney (2001, Corning) "Cylindrical Wire Electrical Discharge Truing of Metal Bond Diamond Grinding Wheels"
16. Adam C. Curry (2001, Becton Dickinson) "Methods of Measuring Flash Temperature in the Grinding of MgO-Doped PSZ"

#### **Graduate Special Project Directed (ME590)**

1. Diana Ma (2006) "A New Stent Design for the Femoropopliteal Segment"
2. Steve Dockstader (2006) "Challenge X - Hydraulic Hybrid Vehicle Design and Powertrain Integration"
3. Steve Slokins (2006) "Surgical tool with cooling channel for thermal management"
4. Bin Shen (2005) "Minimally Quantity Lubrication Grinding"
5. Jia Tao (2005) "Dry Wire EDM of Thin-Workpiece"
6. Eric Stahmer (2004) "Drilling of Ceramic-Plastic Composite Material"
7. Mark Tripp (2003) "The Injection-Molded Sheet Metal Composite"
8. Hongtao Ding (2003) "Modeling of Induction Heating with Thermal Insulator"

#### **Undergraduate Special Project Directed (ME490)**

1. Sakib Elahi (Fall 2006) "Percutaneous Catheterization Training Device"
2. Eric Johnson (Fall 2006) "Percutaneous Catheterization Training Device"
3. Brandon Lloyd (Fall 2006) "Laparoscopic Port Improvement – Manufacturing and Prototype"
4. David Ohrin (Fall 2006) "Laparoscopic port improvement – Seal"
5. David Krumanaker (Fall 2006) "Laparoscopic port improvement – Anchoring"
6. Dmitry Beletsky (Summer 2006) "Active Assist for Foot Orthotic Device"
7. Frank Maurer (Winter 2006) "Hydraulic Regeneration Storage"
8. Ian Hanna (Winter 2006) "PEM Fuel Cell Stack Assembly - Design"
9. Patrick Donaghy (Winter 2006) "PEM Fuel Cell Stack Assembly - Testing"
10. Lukasz Skalski (Winter 2006) "Angioplasties Surgical Training Device"
11. Paul Van Gasse (Winter 2006) "Angioplasties Surgical Training Device"
12. Scott Perrin (Winter 2006) "Device for Arterial-Incision Closure"
13. Bryan Hart (Winter 2006) "Arterial-Incision Closure Device Design"
14. Wai Fong (Winter 2006) "Manufacturing of Biolengthening Device"
15. N. Wang (Winter 2006) "Biolengthening Device"
16. Steve Dockstader (Fall 2005) "Challenge X Hydraulic Regeneration - Testing"
17. Jevon Gerweck (Fall 2005) "Challenge X Hydraulic Regeneration - Design"
18. Samir Shah (Fall 2005) "Challenge X Hydraulic Regeneration - Design"
19. Jonathan Urbanek (Fall 2005) "Challenge X Hydraulic Regeneration - Testing"
20. Bin Shen (Fall 2003) "Minimum Quantity Lubrication Grinding"
21. Daniel Tan (Fall 2003) "Study the Effect of Coolant Flow Rate in Grinding"
22. Enhui Shi (Fall 2003) "Wire EDM of Titanium Thin Section"

#### **Post Doctoral Supervised**

Scott Miller (2006-date)

#### **SERVICE**

##### **Committee Assignments at U of M**

2006–2007: Undergraduate Committee, Shop Committee (Chair), Faculty Search Committee

2005–2006: ME, Design and Manufacturing faculty group coordinator, Undergraduate Committee, Faculty Search Committee (lead in manufacturing)

2004–2005: ME, Design and Manufacturing faculty group coordinator, Undergraduate Committee.

2003–date: PIM, Manufacturing Council

2003–2004: ME, Graduate Committee, Award Committee and Shop Committee

## **Service to Professional Organization**

Associate Editor:

- ASME *Journal of Manufacturing Science and Engineering* (2000–2006)
- International Journal for Manufacturing Science and Production* (1996–1999, 2003–date)
- International Journal of Nanomanufacturing* (2006–date)

Guest Editor:

Special Issue of Biomedical Manufacturing, ASME *Journal of Manufacturing Science and Engineering* (2007)

Reviewing Committee: *International Journal of Machine Tools and Manufacture* (2002 – date)

Scientific Committee: *North American Manufacturing Research Institute (NARMI)* (2006 – date)

Conference Organizer and Chairman:

- Co-organizer, 2007, 10th International Symposium on Advances in Abrasive Technology (ISAAT), Dearborn, MI.
- Co-host, 2006 ASME Manufacturing Science and Engineering Conference (MSEC), Ypsilanti, MI.
- Co-chairman, *Symposium of Nontraditional Manufacturing Research and Applications*, ASME IMECE, 2001, New York, NY.
- Co-organizer, *Symposium on Sensors and Control*, ASME IMECE 1999, Nashville, TN.
- Organizing committee, SME NAMRC XXVI at Georgia Institute of Technology, 1998.
- Co-organizer, *Symposium on Advanced Machining and Finishing Processes for Ceramics, Composite and High Temperature Alloys*, ASME IMECE, 1996, Atlanta, GA.
- Co-chairman, *Symposium on Intelligent Design and Manufacturing*, ASME WAM, 1993, New Orleans, LA.

## **HONORS AND AWARDS**

- Outstanding Paper Award, 2007, NAMRI/SME on “Finite Element Modeling of High-Throughput Drilling of Ti-6Al-4V”
- International adjunct professor, National Cheng Kung University, 2006–date.
- 2006 Gilbert Whitaker Teaching Fund on the development of “Biomedical Design and Manufacturing”
- Best Paper Award, 2004, The 6<sup>th</sup> International Conference on Frontiers of Design and Manufacturing and the 6<sup>th</sup> S.M. Wu Symposium on Manufacturing Science, Xi’an, China
- SAE Ralph Teetor Education Award, 2004
- NSF CAREER Award, 2000
- ASME IMECE BOSS Award, 1999

## **Student Awards as Advisor:**

- 3<sup>rd</sup> place, Student Paper Presentation Award, 2007, NAMRI/SME on “Abrasive Jet Machining for Edge Generation” (Student: Matthew Chastagner)
- 2<sup>nd</sup> Place, Student Design Competition, 2006 ASME Manufacturing Science and Engineering Conference (MSEC) (Students: Brandon Lloyd, David Ohrin, David Krumanaker)