



JIAN CAO

Department of Mechanical Engineering
Northwestern University
2145 Sheridan Road
Evanston, IL 60208
www.mech.northwestern.edu/fac/cao
Tel: (847) 467-1032
Fax: (847) 491-3915
Email: jcao@northwestern.edu

Dr. Cao's major research interests include the mechanics and instability analysis of deformation processes from micro to macro scale, material characterization of metals and woven composites, and machine/process design. Her work has made fundamental contributions to the understanding of wrinkling behavior in sheet metal forming and the effects of material microstructure and material architecture on forming processes. Her research has integrated analytical and numerical simulation methods, control and sensors to advance manufacturing processes. Her contributions have been recognized by honors and awards given by her peers in the field of manufacturing, applied mechanics and control. Her work has been funded both by government agencies and industries.

Dr. Cao has been active at the national and international stages. She served as the Program Director of Materials Processing and Manufacturing (MPM) program at NSF from 2003 to 2005. During that short two-year period, under her leadership, the World Technology Evaluation Study on Micromanufacturing was conducted and co-sponsored by four government agencies and more than ten NSF programs. She co-initiated the joint-funding between NSF and DOE for her MPM program, which has been continued strongly after her departure. She is one of the main driving forces behind the well-received NSF workshops on CAREER development. She is active in professional societies, serving on the executive boards of ASME/MED and SME/NAMRI. Under her initiative, the co-location of flagship conferences of ASME/MED and the Japanese counterpart was held at Northwestern in October of 2008.

PROFESSIONAL EXPERIENCES

Professor,	Mechanical Engineering, Northwestern Univ.	Sept. 2008 - present
Director,	Graduate Studies, Mechanical Engineering	Sept. 2007 - present
Associate Professor,	Mechanical Engineering, Northwestern Univ.	Sept. 2002 - Aug. 2008
Interim Asso. Chair,	Mechanical Engineering, Northwestern Univ.	Sept. 2006 - Aug. 2007
Program Director,	National Science Foundation	Sept. 2003 - Sept. 2005
Assistant Professor,	Mechanical Engineering, Northwestern Univ.	Sept. 1995 - Aug. 2002
	(Industrial training at General Motors Corp.	Sept. 1995 - June 1996)
Postdoctoral Fellow,	Mechanical Engineering, M.I.T.	Feb. 1995 - July 1995

EDUCATION

- Ph.D. Mechanical Engineering, *Massachusetts Institute of Technology*, 1995
Thesis: Design and Control of Forming Parameters for Sheet Metal Forming Using Finite Element Analysis
Thesis Advisor: Professor Mary C. Boyce
- M.S. Mechanical Engineering, *Massachusetts Institute of Technology*, 1992
Thesis: Drawbead as a Control Element of Material Flow during Sheet Metal Forming
Thesis Advisor: Professor Mary C. Boyce
- B.S. Materials Science and Engineering & Automatic Control, *Shanghai JiaoTong Univ.*, 1989

HONORS AND AWARDS

- Associate Member, The International Academy for Production Engineering (CIRP), 2009
- Changjiang Visiting Chair Professor, Shanghai JiaoTong University, 2009 – 2012.
- Best Poster Award, ASME Manufacturing Science and Engineering Conference, 2008,
“Deformation Machining: A New Hybrid Process”, Woody, B., Smith, K.S., Cao, J., Ziegert, J., Belytschko, T., Foecke, T. and Li, M
- Fellow, *American Society of Mechanical Engineers*, 2007
- Young Investigator Award, *American Society of Mechanical Engineers/Applied Mechanics*, 2006
- Outstanding Young Investigator Award, *Japan-US Flexible Automation*, 2002
- Young Chinese Leader, *Dragon Foundation*, Hong Kong, 2002
- Outstanding Young Manufacturing Engineer Award, *Society of Manufacturing Engineers*, 2002
- Ralph R. Teetor Educational Award, *SAE International*, 1999
- CAREER Award, *National Science Foundation*, 1997-2001
- ALCOA Foundation award, 1997
- General Electric Chair Professor, endowed Assistant Professor Chair, Northwestern University, 1996-1997
- First Prize of People’s Scholarship, Excellent Student Award, DongFong Award, Nanyang Award, HuaXin Award, *Shanghai JiaoTong University*, P.R.China 1985-1989

COURSES LECTURED

Graduate Courses:

- ME-445: Micromanufacturing
ME-441: Optimization in Manufacturing Processes
ME-442: Advanced Metal Forming

Undergraduate Courses:

- ME-340-2: CAD/CAM
ME-340-1: Introduction to Manufacturing Processes
ME-240: Introduction to Mechanical Design & Manufacturing

REFEREED JOURNAL ARTICLES

1. Cao, J., Zhou, R, Wang, Q., Xia, Z.C., (2009) "Strip-on-cylinder test apparatus for die wear characterization", *Annals of the CIRP*, Vol.58/1, 251-254, <http://dx.doi.org/10.1016/j.cirp.2009.03.098>.
2. Zhang, H., Makino, T., Dohda, K. and Cao, J., (2009) "Production of Small Pin by Micro/Meso-Scale Rotary Forming", *Materials Science Forum*, Vol. 614, pp 105-110.
3. Mahayotsanuna, N., Sahb, S., Cao, J., Peshkin, M., Gao, R. X. and Wang, C.T., (2009) "Tooling-integrated sensing systems for stamping process monitoring", *International Journal of Machine Tools and Manufacture*, Vol. 49, 634-644, <http://dx.doi.org/10.1016/j.ijmachtools.2009.01.009>
4. Cao, J., Lee, W. Cheng, H.S., Wang, H. and Chung, K. (2008) "Experimental and Numerical Investigation of Combined Isotropic-kinematic Hardening Behavior", *International Journal of Plasticity*, Vol. 25, pp.942-972, doi:10.1016/j.ijplas.2008.04.007.
5. Cao, J., Akkerman, R., Boisse, P., Chen, J., Cheng, H.S., de Graaf, e.F., Gorczyca, J.L., Hivet, G., Launay, J., Lee, W., Liu, L., Lomov, S.V., de Luycker, E., Morestin, F., Padvoiskis, J., Peng, X.Q., Sherwood, J. , Stoilova, T., Tao, X.M., Verpoest, I., Willems, A., Yu, T.X., and Zhu, B., (2008) "Characterization of Mechanical Behavior of Woven Fabrics: Experimental Methods and Benchmark Results", *Composite Part A-Applied Science and Manufacturing*, Vol. 39, 2008, 1037-1053.
<http://dx.doi.org/10.1016/j.compositesa.2008.02.016>
6. Huang, Y., Cao, J., Smith, S., Woody, B., Ziegert, J. and Li, M.(2008) "Experimental and Numerical Investigation of Forming Limits in Incremental Forming of a Conical Cup", *Transaction of the North American Manufacturing Research Institution of SME*, Vol. 38, pp.389-396.
7. Boisse, P., Hamila, N., Helenon, F., Hagege, B. and Cao, J. (2008) "Different Approaches for Woven Composite Reinforcement Forming Simulation", *International Journal of Material Forming*, Vol.1, pp.21 – 29.
8. Chen, W. W., Wang, Q., Wang, F., Keer, L. M., and Cao, J. (2008) "Three-Dimensional Repeated Elasto-Plastic Point Contact, Rolling and Siding," *ASME Journal of Applied Mechanics*, March, Vol.75 (2).
9. Chen, W., W., Liu, Y., Chen, W., Cao, J., Xia, C., and Wang, Q., (2007) "Analysis of Elasto-Plastic Contact with Nominally Flat Surfaces: Average Gap, Contact Area Ratio and Plastic Volume", *Tribology Letters*, Vol. 28 (1), pp. 27-38.
10. Cao, J., Cheng, S.H., Wang, H.P., and Wang, C.T. (2007) "Buckling of Sheet Metals in Contact with Tool Surfaces", *Annals of the CIRP*, Vol.56/1, pp.253-256.
11. Parasiz, S., Kinsey, B., Krishnan, N., Cao, J. and Li, M. (2007) "Investigation of Deformation Size Effects during Microextrusion", *ASME Journal Manufacturing Science and Engineering*, Vol. 129, Issue 4, pp. 690-697.

12. Mori, L., Krishnan, N., Cao, J. and Espinosa, H (2007) "Study of the Size Effects and Friction Conditions in Micro-extrusion: Part II—Size Effect in Dynamic Friction for Brass-steel Pairs", *ASME Journal of Manufacturing Science and Engineering*, Vol. 129, Issue 4, pp. 677-689.
13. Krishnan, N., Cao, J. and Dohda K. (2007) "Study of the Size Effect on Friction Conditions in Micro-extrusion: Part 1 – Micro-Extrusion Experiments and Analysis", *ASME Journal of Manufacturing Science and Engineering*, Vol. 129, Issue 4, pp. 669-676.
14. Onyancha, R., Kinsey, B.L., Krishnan, N., and Cao, J. (2007) "Development of an Accurate Process Model for Microscale Forward Extrusion", *Transaction of the North American Manufacturing Research Institution of SME*, Vol. 35, pp. 121-128.
15. Cheng, H.S., Cao, J. and Xia, Z.C. (2007) "An Accelerated Springback Compensation Method", *International Journal of Mechanical Sciences*, Vol. 49, pp.267-279.
16. Buranathiti, T., Cao, J., Chen, W., Xia, Z.C. (2006) "A Weighted Three-Point-Based Methodology for Variance Estimation", *Engineering Optimization*, Vol. 38(5), pp. 557 - 576.
17. Buranathiti, T., Cao, J., Baghdasaryan, L, Chen, W., Xia, Z.C. (2006) "Approaches for Model Validation in Simulating Sheet Metal Flanging Processes", *ASME Journal of Manufacturing Science and Engineering*, Vol. 128, pp. 588-597.
18. Xue, P., Cao, J. and Chen, J. (2005) "Integrated Micro/Macro Mechanical Model of Woven Fabric Composites under Large Deformation", *Composite Structures*, Vol. 70, pp.69-80.
19. Lu, H., Cheng, H.S., Cao, J. and Liu, W.K. (2005) "Adaptive Enrichment Meshfree Simulation and Experiment on Buckling and Post-buckling Analysis in Sheet Metal Forming," *Computer Methods in Applied Mechanics and Engineering*, Vol. 194, pp.2569 – 2590.
20. Peng, X.Q. and Cao, J. (2005) "A Continuum Mechanics Based Non-orthogonal Constitutive Model for Woven Composites", *Composites: Part A Applied Science and Manufacturing*, Vol. 36(6), pp. 859-874.
21. Xiong, S., Liu, W.K., Cao, J., Li, C.S., Rodrigues, J.M.C. and Martins, P.A.F. (2005) "Simulation of Bulk Metal Forming Processes Using the Reproducing Kernel Particle Method", *Computers & Structures*, Vol. 83, pp. 574 – 587.
22. Cao, J., Krishnan, N., Wang, Z., Lu, H., Liu, W.K., Swanson, A. (2004) "Microforming – Experimental Investigation of the Extrusion Process for Micropins and its Numerical Simulation using RKEM", *ASME Journal of Manufacturing Science and Engineering*, Vol. 126, pp. 642-652.
23. Li, S. and Cao, J. (2004) "A Hybrid Approach for Quantifying the Winding Process and Material Effects on Sheet Coil Deformation", *ASME Journal of Materials Engineering and Technology*, Vol. 126(3), pp.303-313, July.
24. Cheng, H., Cao, J., Yao, H., Liu, S.D., and Kinsey, B.L. (2004) "Wrinkling Behavior of Laminated Steel Sheets", *Journal of Materials Processing Technology*, Vol.151/1-3, pp. 133-140.

25. Chen, W., Baghdasaryan, L, Buranathiti, T., Cao, J., (2004) "Model Validation via Uncertainty Propagation and Data Transformations", *AIAA*, Vol. 42(7), pp.1406-1415.
26. Lu, H., Li, S., Simkins, D.C., Liu, W.K. and Cao, J. (2004) "Reproducing Kernel Element Method, Part III: Generalized Enrichment and Applications", *Computer Methods in Applied Mechanics and Engineering*, Vol. 193, pp.989 – 1011.
27. Liu, W. K., Han, W., Lu, H., Li, S., and Cao, J. (2004) "Reproducing Kernel Element Method, Part I Theoretical Formulation", *Computer Methods in Applied Mechanics and Engineering*, Vol. 193, pp.933 - 951.
28. Kinsey, B., Krishnan, N., and Cao, J. (2004) "A Methodology to Reduce and Quantify Wrinkling in Tailor Welded Blank Forming", *International Journal of Materials and Product Technology*, Vol. 21 (1/2/3), pp. 154 -168.
29. Buranathiti, T., Cao, J. (2004) "An Effective Analytical Model for Springback Prediction in Straight Flanging Processes", *International Journal of Materials & Product Technology*, Vol. 21 (1/2/3), pp.137 – 153.
30. Peng, X.Q., Cao, J., Chen, J., Xue, P., Luisser, D.S. and. Liu, L. (2004) "Experimental and numerical analysis on normalization of picture frame tests for composite materials", *Composites Science and Technology*, Vol. 64, pp.11-21.
31. Krishnan, N. and Cao, J. (2003) "Estimation of optimal blank holder force trajectories in segmented binders using an ARMA model", *ASME Journal of Manufacturing Science and Engineering*, Vol. 125(4), pp. 763-771, November.
32. Cao, J., Xue, P., Peng, X.Q. and Krishnan, N (2003) "An approach in modeling the temperature effect in thermo-forming of woven composites", *Composite Structures*, Vol. 61(4), pp.413-420.
33. Kinsey, B.L. and Cao, J (2003) "An analytical model for Tailor Welded Blank forming", *ASME Journal of Manufacturing Science and Engineering*, May, Vol. 125(2), pp.344-351.
34. Viswanathan, V., Kinsey, B.L., and Cao, J., (2003) "Experimental Implementation of Neural Network Springback Control for Sheet Metal Forming", *ASME Journal of Engineering Materials and Technology*, Vol. 125 (2), April, pp.141-147.
35. Xue, P., Peng, X.Q. and Cao, J. (2003) "A Non-orthogonal Constitutive Model for Characterizing Woven Composite", *Composites: Part A*, Vol. 34/2, pp. 183 – 193.
36. Xiong, S., Liu, W.K., Cao, J., Rodrigues J.M.C. and Martins, P.A.F. (2003) "On the Utilisation of the Reproducing Kernel Particle Method for the Numerical Simulation of Plane Strain Rolling", *International Journal of Machine Tools and Manufacture*, Vol. 43(1), pp.89-102.
37. Cao, J., Wang, X., and Mills, F. A. (2002) "Characterization of Sheet Buckling Phenomenon Subjected to Controlled Boundary Constraints", *ASME Journal of Manufacturing Science and Engineering*, August, 2002, Vol. 124, pp.493-501.
38. Peng, X.Q. and Cao, J (2002) "A Dual Homogenization and Finite Element Approach for Material Characterization of Textile Composites ", *Composites Part B*, Vol. 33 (1), pp 45-56.

39. Yao, H. and Cao, J. (2002) "Prediction of Forming Limit Curves Using an Anisotropic Yield Function with Prestrain Induced Backstress", *International Journal of Plasticity*, Vol.18/8, pp.1013-1038.
40. Li, S.P. and Cao, J. (2002) "A Study on the Stress Distribution in Coil Wrapping and its Effect on the Final Coil Deformation", *Transaction of the North American Manufacturing Research Institution of SME*, Vol. 30, pp.95-102.
41. Liu, G., Lin, Z.Q., Cao, J. and Bao, Y.X. (2002) "Eliminating Springback Error in U-shaped Part Forming by Variable Blankholder Force", *Journal of Materials Engineering and Performance*, v 11, n 1, February, 2002, pp. 64-70.
42. Cao, J., Li, Shunping, Xia, Z.C. and Tang, S.C. (2001) "Analysis of an Axisymmetric Deep Drawn Part Forming Using Less Forming Steps", *Journal of Materials Processing Technology*, Vol. 117/1-2, pp. 193-200, November.
43. Chen, J., Lussier, D.S., Cao, J. and Peng, X.Q., (2001) "The Relationship Between Materials Characterization Methods and Material Models for Stamping of Woven Fabric/thermoplastic Composites", *International Journal of Forming Processes*, Vol. 4, Issues 3-4, pp. 269-294.
44. Wang, X. and Cao, J. (2001) "Wrinkling Limit in Tube Bending", *ASME Journal of Engineering Materials and Technology*, Vol.123, pp.430 – 435, October.
45. Song, N., Qian, D., Cao, J., Liu, W., Viswanathan, V. and Li, S.F. (2001) "Effective Models for Prediction of Springback in Flanging", *ASME Journal of Engineering Materials and Technology*, Vol.123, pp.456-461, October.
46. Kinsey, B. and Cao, J. (2001) "Enhancement of Sheet Metal Formability via Local Adaptive Controllers", *Transactions of the North American Manufacturing Research Institution of SME*, Vol. XXIX, pp. 81-88.
47. Wang, X., Cao, J. and Li, M. (2001) "Wrinkling Analysis in Shrink Flanging", *ASME Journal of Manufacturing Science and Engineering*, Vol. 123, pp.426-432, August.
48. Cao, J., Kinsey, B.L., Yao, H., Viswanathan V. and Song, N. (2001) "Next Generation Stamping Dies - Flexibility and Controllability", *Robotics and Computer-Integrated Manufacturing*, Vol.17/1-2, pp.49-56, March.
49. Yao, H and Cao, J. (2001) "Assessment of Corner Failure Depths in the Deep Drawing of 3D Panels Using Simplified 2D Numerical and Analytical Model", *ASME Journal of Manufacturing Science and Engineering*, Vol.123 (2), pp.248-257.
50. Lee, C.H. and Cao, J. (2001) "Shell Formulation of Multi-step Inverse Analysis for the Design of Axisymmetric Deep Drawing Process", *International Journal of Numerical Methods in Engineering*, Vol.50, pp.681-706.
51. Kinsey, B.L., Viswanathan, V., and Cao, J., (2001) "Forming of Aluminum Tailor Welded Blanks", *Journal of Materials & Manufacturing*, Vol. 110, Section 5, pp. 673-679.

52. Cao, J., Yao, H., Karafillis, A. and Boyce, M.C. (2000) "Prediction of Localized Thinning in Sheet Metal Using a General Anisotropic Yield Criterion", *International Journal of Plasticity*, Vol. 16/9, pp.1105-1129, August.
53. Wang, X. and Cao, J., (2000) "On the Prediction of Side-wall Wrinkling in Sheet Metal Forming Processes", *International Journal of Mechanical Science*, Vol. 42/12, pp.2369-2394, July.
54. Kinsey, B. Liu, Z.H. and Cao, J. (2000) "A Novel Forming Technology for Tailor Welded Blanks", *Journal of Materials Processing Technology*, Vol. 99, pp.145-153.
55. Wang, X. and Cao, J. (2000) "An Analytical Model for Predicting Flange Wrinkling in Deep Drawing", *Journal of Manufacturing Processes*, Vol. 2/2, pp.100-107. Also appeared in *Transaction of the North American Manufacturing Research Institution of SME*, Vol.26, 1998, pp.25-30.
56. Cao, J., Kinsey, B. and Solla, S. (2000) "Consistent and Minimal Springback Using a Stepped Binder Force Trajectory and Neural Network Control", *ASME Journal of Engineering Materials and Technology*, Vol.122, pp.113-118, January.
57. Cao, J. and Wang, X. (1999) "An Analytical Model for Plate Wrinkling under Tri-axial Loading and its Application", *International Journal of Mechanical Science*, Vol. 42, No. 3, pp.617-633.
58. Kinsey, B., Liu, Zhihong, and Cao, J. (1999) "New Apparatus and Method for Forming Tailor Welded Blanks", *Journal of Materials & Manufacturing*, Vol. 108, Section 5, pp. 653-660.
59. Yao, H., Kinsey, B. and Cao, J. (1999) "A Simplified 2-D Model for Predicting 3-D Corner Failure in a Square Part", *Journal of Materials & Manufacturing*, Vol. 108, Section 5, pp. 958-966.
60. Yao, H., Kinsey, B. and Cao, J. (1999) "Rapid Design of Corner Restraining Force in Deep Drawn Rectangular Parts", *International Journal of Machine Tools and Manufacture*, Vol. 40, No.1, pp.113-131.
61. Cao, J. (1999) "Prediction of Plastic Wrinkling Using Energy Method", *ASME Journal of Applied Mechanics*, Vol.66, pp.646-652, September.
62. Wang, Xi and Cao, J. (1999) "Stress-based Prediction for the Straight Side-wall Wrinkling in Deep Drawing Processes", *Transaction of the North American Manufacturing Research Institution of SME*, Vol.27, pp.55-60.
63. Ruffini, R. and Cao, J. (1998) "Using Neural Network for Springback Minimization in a Channel Forming Process", *Journal of Materials & Manufacturing*, Vol. 107, Section 5, pp. 65-73.
64. Cao, J. and Boyce, M. (1997) "Wrinkling Behavior of Rectangular Plates under Lateral Constraints", *International Journal of Solids and Structures*. Vol. 34 (2), Section 5, pp.153-176.

65. Cao, J. and Boyce, M. (1997) "A Predictive Tool for Delaying Wrinkling and Tearing Failure in Cup Forming", *ASME Journal of Engineering Materials and Technology*, Vol. 119, October, pp.354-365.
66. Sunseri, M., Cao, J., Karafillis, A.P. and Boyce, M. (1996) "Accommodation of Springback Error in Channel Forming Using Active Binder Force Control: Numerical Simulation and Experiments", *ASME Journal of Engineering Materials and Technology*. Vol.118, July, pp.426-435.
67. Taylor, L., Cao, J., Karafillis, A.P., and Boyce, M.C. (1995) "Numerical Simulations of Sheet Metal Forming", *Journal of Materials Processing Technology*, Vol. 50, pp. 168-179.
68. Jalkh, P., Cao, J., Hardt, D. and Boyce, M. C. (1993) "Optimal Forming of Al 2008-T4 Conical Cups Using Force Trajectory Control", *Journal of Materials & Manufacturing*, Vol.102, Sec. 5, pp.416-427.
69. Cao, J. and Boyce, M. (1993) "Draw Bead Penetration as a Control Element of Material Flow", *Journal of Materials & Manufacturing*, Vol. 102, Sec 5, pp.694-702.

PATENTS

1. Cao, J. and Kinsey, B., 'Adaptive Method and Apparatus for Forming Tailor Welded Blank', U.S. Patent No. 5,941,110, August 24, 1999.
2. Cao, J., Lee, J.H. and Peshkin, M., 'Real-time Draw-in Sensors and Methods of Fabrication', U.S. Patent No.6,769,280, August 3, 2004.
3. Cao, J., Swanson, T. and Davis, T. 'Continuous Micro-Forming for Rapid Surface Texture Generation', Provisional Patent Application Submitted (NU27139).
4. Smith, K. S., Woody, B., Ziegert, J. and Cao, J. 'Deformation Machining – A Hybrid Process', Patent Disclosure Form Submitted.

BOOK CHAPTERS

1. Ehmann, K.F., DeVor, R.E., Kapoor, S.G. and Cao, J. (2008) Chapter: Design and Analysis of Micro/Meso-scale Machine Tools, in *Smart Devices and Machines for Advanced Manufacturing*, Springer-Verlag London.
2. Philippe Boisse, Remko Akkerman, Jian Cao, Julie Chen, Stepan Lomov and Andrew Long, (2007) "Composites Forming" in *Advances in Material Forming (Esaform 10 Years on)*, Springer, ISBN: 978-2-287-72142-7.
3. Cheng, H.S., Cao, J., Mahayotsanun, N. (2007) "Experimental Study on Behavior of Woven Composites in Thermo-stamping under Nonlinear Temperature Trajectories", *Advanced Methods in Material Forming*, ed. Dorel Banabic, Springer, ISBN: 978-3-540-69844-9.
4. Cao, J. (2007), *Preface*, "Micromanufacturing: International Assessment of Research and Development", Springer, ISBN: 1402059485, Ehmann, K. et al.
5. Gorczyca, J., Chen, J. and Cao J. (2007), *Composite Forming Technologies*, Woodhead Publishing Lt., Cambridge, UK., ISBN 1 84569 033 8.

6. Smith, L.M.; Zhang, L.; Wang, C.-T.; Shi, M.F.; Yoon, J.-W.; Stoughton, Th.B.; Cao, J.; Pourboghrat, F. (2005) *Numerical Simulation of 3D Sheet Metal Forming Processes*, American Institute of Physics, Melville, New York, ISBN: 978-0-7354-0265-2.
7. Cao, J. (2005) *The ASM Handbook (Volume 14) Chapter 16: Bending and Flanging, of Aluminum Sheet*, ASM International, ISBN: 1-892140-03-9.
8. Mahmoud Y. Demeri, Jian Cao and Ravi Venugopal (2005) *The ASM Handbook (Volume 14) Chapter 18: Process and Adaptive Control for Sheet Forming*, ASM International, ISBN:1-892140-03-9.

REFEREED CONFERENCE PUBLICATIONS

1. Mahayotsanuna, N., Lee, H.C., Cheng, T.J., Chuang, Y., Tu, K.Y., Ehmann, K and Cao, J. (2009) "Development of the high-speed micro-extrusion machine to investigate strain rate and size effects", 4M/ICOMM 2009, Karlsruhe, Germany.
2. Wang, Yongjun, Wu, Weichao, Huang, Ying, Reddy, N.V. and Cao, J. (2009) "Experimental and Numerical Analysis of Double Sided Incremental Forming", Proceedings of the 2009 International Manufacturing Science and Engineering Conference, MSEC2009, October 5-8, 2009, West Lafayette, IN, USA.
3. Wang, Y., Huang, Y., Cao, J. and Reddy, N.V. (2008) "Experimental Study on a New Method of Double Side Incremental Forming", Proceedings of the 2008 International Manufacturing Science and Engineering Conference, MSEC2008, October 7-10, 2008, Evanston, Illinois, USA.
4. Huang, Y., Cao, J., Smith, S., Woody, B., Ziegert, J. and Li, M. (2008) "Studies of Size Effect on the Formability of a Domed Part in Incremental Forming", Proceedings of the 2008 International Manufacturing Science and Engineering Conference, MSEC2008, October 7-10, 2008, Evanston, Illinois, USA.
5. Malhotra, R., Reddy, N.V. and Cao, J. (2008) "A Generic Tool Path Generation Methodology for Incremental Forming", Proceedings of the 2008 International Manufacturing Science and Engineering Conference, MSEC2008, October 7-10, 2008, Evanston, Illinois, USA.
6. Davis, T., Zhou, R., Pallav, K., Beltran, M., Cao, J., Ehmann, K., Wang, Q. J., Xia, Z. C., Talwar, R. and Lederich, R. (2008) "Experimental friction study of micro-scale laser-textured surfaces," International Workshop on Microfactories 2008, Oct. 5-7, 2008, Evanston, IL.
7. Cao, J., Huang, Y., Reddy, N.V., Malhotra, R. and Wang, Y. (2008) "Incremental Sheet Metal Forming: Advances and Challenges", International Conference on Technology of Plasticity, Gyeongju, Korea, pp. 1967-1982, ISBN: 978-89-5708-152-5.
8. Beltran, M., Huang, Y., Zhou, R. and Cao, J. (2008) "Microchannel Fabrication using Micro-Incremental Forming in Thin Stainless Steel Sheet", 3rd *International Conference on Micromanufacturing*, September, 2008, Pittsburgh, PA.
9. Cao, J., Lee, W., Cheng, H.S., Wang, H.P. and Chung, K. (2008) "Experimental and Numerical Investigation of Combined Isotropic-kinematic Hardening Behavior", in *Mechanics and Mechanisms of Finite Plastic Deformation*, edited by A.S. Khan and B. Farrokh,

Proceedings of PLASTICITY '08: The 14th International Symposium on Plasticity and its Current Applications in Kailua-Kona, Hawaii, U.S.A., Jan. 3-8, 2008, Neat Press, Fulton, Maryland, 2008, pp.109-111.

10. Lee, W., Cao, J., Badel, P. and Boiss, P. (2008) "Non-orthogonal Constitutive Model for Woven Composites with Considering Tensile Effect on Shear Behavior", in The 11th ESAFORM Conference on Material Forming, Proceedings of ESAFORM 2008 in Lyon, France, Apr. 23-25, 2008, pp.327-330.
11. Lee, W., Padvoiskis, J., Cao, J., de Luycker, E., Boisse, P., Morestin, F., Chen, J. and Sherwood, J. (2008) "Bias-extension of woven composite fabrics", in The 11th ESAFORM Conference on Material Forming, Proceedings of ESAFORM 2008 in Lyon, France, pp.331-334.
12. Wang, H-P., Xu, S., Cao, J., Chen, W. and Cheng, H.S. (2008) "A Study on a Surface Distortion Predictor for Sheet Metals: validation in Yoshida Buckling Problems", in 2008 NUMISHEET.
13. Parasiz, S.A., Kinsey, B., Krishnan, N. and Cao, J. (2007) "Characterization and Investigation of Deformation during Microextrusion using X-ray Texture Analysis", *ASME International Manufacturing Science and Engineering Conference*, Atlanta, Georgia.
14. Huang, Y., Wang, Y.J., Cao, J. and Li, M. (2007) "Prediction of Forming limit in Single Point Incremental Forming with the Ductile Fracture Criterion," *ASME International Manufacturing Science and Engineering Conference*, Atlanta, Georgia.
15. Davis, T., Cao, J., Chen, W., Wang, Q., Xia, C., Talwar, R. and Lederich, R. (2007) "Effect of Micro Manufacturing Processes on Surface Behavior," *ASME International Manufacturing Science and Engineering Conference*, Atlanta, Georgia.
16. Mahayotsanu, N, Krishnan, N., Cao, J. and Ehmann, K. (2007) "Study of Strain Rates and Size Effects in the Microextrusion Process: Part I - Development of a Microextrusion Machine," *2nd International Conference on Micromanufacturing*, Clemson, South Carolina.
17. Parasiz, S.A., Kinsey, B., Mahayotsanun, N. and Cao, J. (2007) "Dependence of Deformation on Grain Size and Sample Size in Microextrusion," *2nd International Conference on Micromanufacturing*, Clemson, South Carolina.
18. Mahayotsanu, N, Cao, J., Sah, S., Gao, R., and Wang, C.T., (2007) "Integrated Sensing System for Stamping Monitoring and Control," *IEEE SENSORS 2007*, Atlanta, Georgia.
19. Lee, W., Cao, J., Chen, J. and Sherwood, J.A. (2007) "Numerical Analysis on Double Dome Stretching Tests of Woven Composites", *ESAFORM Conference*, Zaragoza, Spain, ISBN: 978-0-7354-0414-4, pp. 1052-1057.
20. Cheng, H.S., Lee, W., Cao, J., Seniw, M. and Wang, H.P. and Chung, K.S. (2007) "Experimental and Numerical Investigation of Kinematic Hardening Behavior in Sheet Metals", *ESAFORM Conference*, Zaragoza, Spain, ISBN: 978-0-7354-0414-4, pp.337 – 342.

21. Gamache, L., Sherwood, J.A., Chen, J. and Cao, J. (2007) "Characterization of the Fabric/Tool and Fabric/Fabric Friction during the Thermostamping Process", *ESAFORM Conference*, Zaragoza, Spain, ISBN: 978-0-7354-0414-4, pp. 1068-1073.
22. Cheng, H. S., Cao, J. and Wang, H.P. (2006) "Experimental and Numerical Analysis of the Buckling and Post-buckling Phenomena in the Yoshida Test", *ASME International Conference on Manufacturing Science and Engineering*, Ypsilanti, Michigan, 2006.
23. Cao, J., Krishnan, N, Mori, L. and Espinosa H.D. (2006) "Experimental Investigation of the Size Effects Observed in the Extrusion of Micropins", *1st International Conference on Micromanufacturing*, Urbana, Illinois, 2006.
24. Mahayotsanum, N., Cao, J. and Peshkin, M. (2006) "Characterization of a Draw-in Sensor Built on the Principal of Mutual Inductance", *International Symposium on Flexible Automation*, Osaka, Japan.
25. Liu, L, Chen, J., Zhu, B., Yu, T.X., Tao, X.M., and Cao, J. (2006) "The Yarn-to-Yarn Friction of Woven Fabric", *ESAFORM 2006*, Glasgow, U.K.
26. Buranathiti, T., Cao, J., Xia, Z.C. and Chen, W. (2005) "Probabilistic Design in a Sheet Metal Stamping Process under Failure Analysis", *NUMISHEET*, Detroit, MI.
27. Mahayotsanun, N., Cao, J. and Peshkin, M. (2005) "A Draw-In Sensor for Process Control and Optimization", *NUMISHEET*, Detroit, MI.
28. Krishnan, N., Cao, J., Kinsey, B., Parasiz, S.A. and Li, M. (2005) "Investigation of Deformation Characteristics of Micropins Fabricated Using Microextrusion", *IMECE 2005*, Orlando, FL.
29. Krishnan, N., Cao, J. and Dohda, K. (2005) "Microforming: Study of Friction Conditions and the Impact of Low Friction/High Strength Die Coatings on the Extrusion of Micropins", *IMECE 2005*, Orlando, FL.
30. Hang Shawn Cheng, Jian Cao, Numpon Mahayotsanun (2005) "Experimental Study on Woven Composites with Different Temperature Trajectories", *ESAFORM Conference*, April, 2005.
31. Krishnan, N., Cao, J., Ehmann, K. F. and Owusu-Ofori, S. (2004) "Microforming: Study of grain size and friction effects in the extrusion of micropins", *4th International Workshop on Microfactories*, Shanghai, China, October 15-17, 2004.
32. Krishnan, N. and Cao, J. (2004) "Experimental Investigation and Comparison of Variable Blank-holder Force Trajectories Using an ARMA Model", *JUSFA 2004*, July 19-21, Denver, Colorado.
33. Liu, W.K., Cao, J. Lu, H.S. and Krishnan, N. (2004) "A Multi-scale Simulation of Microforming Process Using RKEM", *NUMIFORM 2004*, June 13-17, Columbus, OH.
34. Sahai, A., Schramm, U., Buranathiti, T., Chen, W., Cao, J. and Xia, Z.C. (2004) "Sequential Optimization and Reliability Assessment Method for Metal Forming Processes", *NUMIFORM 2004*, June 13-17, Columbus, OH.

35. Cao, J., Cheng, H.S. and Peng, X.Q. (2004) "Experimental Verification for a Non-orthogonal Constitutive Model for Woven Composites", *ESAFORM Conference*, April, 2004.
36. Cao, J. and Cheng, H.S. (2004) "An Accelerated Method for Springback Compensation", *ESAFORM Conference*, April, 2004.
37. J. Cao, H.S. Cheng, T.X. Yu, B. Zhu, X.M. Tao, S.V. Lomov, Tz. Stoilova, I. Verpoest, P. Boisse, J. Launay, G. Hivet, L. Liu, J. Chen, E.F. de Graaf and R. Akkerman (2004) "A Cooperative Benchmark Effort on Testing of Woven Composites", *ESAFORM Conference*, April, 2004, p.305.
38. Cao, Peng, X.Q., Cao, J., Chen, J. (2003) "Stamping Simulation of Woven Composites Using a Non-orthogonal Constitutive Model", *ESAFORM Conference on Material Forming*, Italy.
39. Cheng, H.S., Lu, H., Cao, J. and Liu, W.K. (2003) "Characterization of Wrinkling: Experiments and Simulations", *ESAFORM Conference on Material Forming*, Italy.
40. Krishnan, N., Cao, J., (2002) "Estimation of Optimal Blank Holder Force Trajectories in Segmented Binders Using an ARMA Model", *Proceedings of the JSME/ASME Conference on Materials and Processing*, Oct 15-18, 2002-Honolulu, Hawaii.
41. Peng, X.Q., Xue, P., Cao, J., Lussier, D. and Chen, J. (2002) "Normalization in the Picture Frame Test of Woven Composites: Length or Area?", *ESAFORM Conference on Material Forming*, Krakow, Poland.
42. Baghdasaryan, L., Chen, W., Buranathiti, T. and Cao, J. (2002) "Model Validation via Uncertainty Propagation using Response Surface Models", *2002 ASME Design Engineering Technical Conferences*, Montreal, Canada.
43. Buranathiti, T. and Cao, J., Baghdasaryan, L., Chen, W., (2002) "An Approach for Model Validation in Simulating Sheet Metal Forming Processes", *International Conference on Frontiers of Design and Manufacturing*, Dalian, China
44. Krishnan, N and Cao, J. (2002) "Real-time Calculation of Optimal Blank-holder Force History in Sheet Metal Forming Using an ARMA Model", *2002 Japan US Symposium on Flexible Automation*, Hiroshima, Japan.
45. Li, S.P. and Cao, J (2001) "Enhancement of Coil Stiffness Using a Cardboard Core", *2001 International Mechanical Engineering Congress and Exposition*, New York, NY.
46. Peng, X.Q. and Cao, J. (2001) "Sensitivity Study on Material Characterization of Textile Composite", *the First M.I.T. Conference on Computational Fluid and Solid Mechanics*, Cambridge, Massachusetts, June 12 - 14, 2001.
47. Kinsey, B.L. and Cao, J. (2001) "Numerical Simulation and Experimental Implementation of Tailor Welded Blank Forming", *Second Global Conference on Processing & Manufacturing of Sheet Metals*, *2001 TMS Annual Meeting*, New Orleans, Louisiana, February 11-15, 2001.
48. Peng, X.Q., Lussier, D., Cao, J. and Chen, J. (2001) "Material Behavior Characterization of Textile Composite Sheets: Experiments and Simulation", *Second Global Conference on Processing & Manufacturing of Sheet Metals*, *2001 TMS Annual Meeting*, New Orleans, Louisiana, February 11-15, 2001.

49. Song, N., Qian, D., Cao, J., Liu, W., Viswanathan, V. and Li, S.F. (2000) "Effective Models for Prediction of Springback in Flanging", *Symposium on Advances in Metal Forming*, American Society of Mechanical Engineers, Orlando, Florida.
50. Peng, X.Q. and Cao, J. (2000) "Numerical Determination of Mechanical Elastic Constants of Textile Composites", *15th Annual Technical Conference of the American Society for Composites*, College Station, Texas, Sept. 25-27, 2000.
51. Lee, L.H., Cao, J., Xia, Z.C. and Tang, S.C. (2000) "Reduction of Forming Steps of an Axisymmetric Multi-step Drawing Problem via Numerical Modeling", *2000 Society of Automotive Engineers International Congress & Exposition*, Detroit, MI.
52. Cao, J., Kinsey, B.L., Song, N. and Yao, H. (2000) "Next Generation Stamping Dies - Flexibility and Controllability", *International Conference of Flexible Automation & Intelligent Manufacturing*, College Park, Maryland.
53. Kinsey, B., Song, N., and Cao, J. (1999) "Analysis of Clamping Mechanism for Tailor Welded Blank Forming", *1999 International Body Engineering Conference*, paper No. 99IBECC_26, Detroit, MI.
54. Cao, J., Liu, Zhihong, Liu, W.K. (1999) "Prediction of Springback in Straight Flanging", *Symposium on Advances in Sheet Metal Forming, 1999 ASME IMECE Winter Conference*.
55. Cao, J., Karafillis, A. and Ostrowski, M. "Prediction of Flange Wrinkles in Deep Drawing", *Advanced Methods in Materials Processing Defects*, ed. Predeleanu and P.Gilormini, 1997.
56. Cao, J., Karafillis, A. and Boyce, M. "Prediction of Forming Limit Diagram using KB yield Criterion", *International Symposium on Plasticity and its Current Applications*, 1997.
57. Kinsey, B. and Cao, J. "An Experimental Study to Determine the Feasibility of Implementing Process Control to Reduce Part Variation in a Stamping Plant", *1997 Society of Automotive Engineers International Congress & Exposition*, Detroit, MI.
58. Cao, J. and Boyce, M., "Design and Control of Forming Parameters Using Finite Element Analysis", *Symposium on Computational Material Modeling*, American Society of Mechanical Engineers, Chicago, IL. 1994, pp.265.
59. Sunseri, M., Karafillis, A., Cao, J. and Boyce, M., "Methods to Obtain the Net Shape in Aluminum Sheet Forming Using Active Binder Force Control", *Symposium on Mechanics of Materials Processing and Manufacturing*, 1994. ASME, Chicago, IL.
60. Cao, J., Bakkestuen, R., Jalkh, P., Boyce, M. and Hardt, D., "Improvement of Forming Height and Stability of Aluminum Parts Using Active Binder Control", *International Deep Drawing Conference*, 1994, Lisboa, Portugal.

NON-REFEREED CONFERENCE PUBLICATIONS

61. Cao, J and Malhotra, R. (2009) "Incremental Forming at Multi-Scales", Proceedings of 2009 NSF Engineering Research and Innovation Conference, Honolulu, Hawaii, June 22-25, 2009.

62. Cao, J., Peshkin, M., Mahayotsanun, N., Gao, R.X., Sah, S. and Wang, Chuan-tao (2009) "Tooling-Integrated Draw-In and Pressure Sensing for Stamping Process Monitoring", Proceedings of 2009 NSF Engineering Research and Innovation Conference, Honolulu, Hawaii, June 22-25, 2009.
63. Smith, S., Woody, B., Cao, J., Belytschko, T., Malhotra, R., Huang, Y., Ziegert, J., Gnäupel-Herold, T. and Foecke, T. (2009) "Deformation Machining – A New Hybrid Process", Proceedings of 2009 NSF Engineering Research and Innovation Conference, Honolulu, Hawaii, June 22-25, 2009.
64. Huang, Y., Beltran, M. and Cao, J. (2008) "Experimental and Numerical Investigation of Forming Limits in Single Point Incremental Forming of a V-Shape Groove", Proceedings of the 8th International Conference on Frontiers of Design and Manufacturing, September 23~26, 2008, Tianjin, China.
65. Cao, J., Lee, W., Huang, Y., Wang, H-P (2008) "Numerical and experimental Analysis of Subtle Surface Distortion in Sheet Metal Forming", in The 8th World Congress on Computational Mechanics/The 5th European Congress on Computational Methods in Applied Sciences and Engineering, edited by B.A. Schrefler and U. Perego, Proceedings of WCCM8 and ECCOMAS2008, in Venice, Italy, Jun. 30-Jul. 4, International Center for Numerical Methods in Engineering (CIMNE), Barcelona, Spain, 2008 pp. 228.
66. Cao, J., Lee, W. and Padvoiskis, J. (2008) "Characterization of Material Deformation Behavior of Woven Composites", in 2008 NSF Engineering Research and Innovation Conference in Knoxville, Tennessee, U.S.A., Jan. 7-10, 2008.
67. Cao, J., Peshkin, M. and Mahayotsanun, N., Gao, R.X., Sah, S. and Wang, C.T. (2008) "Integrated Sensing for Stamping Process Monitoring and Control", in 2008 NSF Engineering Research and Innovation Conference in Knoxville, Tennessee, U.S.A., Jan. 7-10, 2008.
68. Kinsey, B.L., Onyancha, R.M., Parasiz, S.A., Krishnan, N., Cao, J., Ehmann, K., Liu, W.K., Espinosa, H. and Li, M. (2008) "Microforming Processes – Fundamental Studies and Developments", in 2008 NSF Engineering Research and Innovation Conference in Knoxville, Tennessee, U.S.A., Jan. 7-10, 2008.
69. Lee, W. and Cao, J. (2007) "Characterization of Woven Composites Forming from Macro to Micro", International Conference on Intelligent Textiles 2007 in Seoul National University, Seoul, South Korea, Nov. 11-13, 2007.
70. Lee, W. and Cao, J. (2007) "Non-orthogonal constitutive law with considering the tensile effect on the shear modulus", 2007 NSF Grantee Conference on International Research and Education in Engineering in Purdue University, Indiana, U.S.A., Oct.30-Nov.1, 2007.
71. Sherwood, J. A. and Cao, J. (2006) "Collaborative Research: Enhancing the Understanding of the Fundamental Mechanisms of Thermostamping Woven Composites to Develop a Comprehensive Design Tool", *National Science Foundation DMII Grantee Conference*, St. Louis, MO.

72. Cao, J. and Krishnan, N. (2006) "Experimental Study of Friction Behavior in Micropin Extrusion", *International Conference of Frontiers in Design and Manufacturing*, Guangzhou, China.
73. Cao, J. and Krishnan, N. (2005) "Recent Advances in Microforming: Science, Technology and Applications", *TMS*, Pittsburg, PA.
74. Buranathiti, T. and Cao, J. (2005) "Benchmark Simulation Results: Automotive Deck Lid Inner Panel (Benchmark 1)", *NumiSheet 2005*, Detroit, MI.
75. Buranathiti, T. and Cao, J. (2005) "Numisheet 2005 Benchmark Analysis on Forming of an Automotive Deck Lid Inner Panel (Benchmark 1)", *NumiSheet 2005*, Detroit, MI.
76. Buranathiti, T. and Cao, J. (2005) "Benchmark Simulation Results: Automotive Underbody Cross Member (Benchmark 2)", *NumiSheet 2005*, Detroit, MI.
77. Buranathiti, T. and Cao, J. (2005) "Numisheet 2005 Benchmark Analysis on Forming of an Automotive Underbody Cross Member (Benchmark 2)", *NumiSheet 2005*, Detroit, MI.
78. Buranathiti, T. and Cao, J. (2005) "Benchmark Simulation Results: Channel Draw/Cylindrical Cup 2-Stage Test (Benchmark 3)", *NumiSheet 2005*, Detroit, MI.
79. Liu, W.K., Cao, J. Cheng, H.S., Lu, H. (2004) "Founding of New Numerical Tool (RKEM) and Advancement of Experimental Setup", *2004 National Science Foundation DMII Grantee Conference*, January, Dallas, TX.
80. Jian Cao, Wing Kam Liu, Hang Shawn Cheng, Hongsheng Lu (2003) "A Multi-Scale Approach for Predicting Wrinkling and its Experimental Verification ", *2003 National Science Foundation DMII Grantee Conference*, Birmingham, Alabama.
81. Jian Cao, Julie Chen, Samuel Chow, Darin Lussier, Xiongqi Peng, Xue Pu (2003), "Characterization in Stamping of Woven Composites", *2003 National Science Foundation DMIII Grantee Conference*, Birmingham, Alabama.
82. Cao, J. (2002) "Springback Prediction in Straight Flanging", *2002 Plasticity Conference*, Aruba, Netherland.
83. Cao, J. and Wang, X. (2001) "Experimental Study on Sheet Wrinkling Behavior and its Analysis", *2001 National Science Foundation DMII Grantee Conference*, Florida.
84. Cao, J., Kinsey, B.L., and Song, N. (2001) "Experimental Implementation of the Novel Forming Process", *2001 National Science Foundation DMII Grantee Conference*, Florida.
85. Chen, J., Bulusu, A., Cao, J. and Peng, X. (2001) "Intelligent Material and Process Design for Stamping of Structural Composites: Modeling and Comparisons", *2001 National Science Foundation DMII Grantee Conference*, Gainesville, Florida.
86. Cao, J. and Wang, X. (2000) "A Stress Based Wrinkling Criterion", *2000 National Science Foundation DMII Grantee Conference*, Vancouver, Canada.

87. Cao, J., Kinsey, B.L., and Song, N. (2000) "Enhance the Formability of Sheet Metal via Smart Tooling", *2000 National Science Foundation DMII Grantee Conference*, Vancouver, Canada.
88. Chen, J., Bulusu, A., Cao, J. and Peng, X. (2000) "Intelligent Material and Process Design for Stamping of Structural Composites: Fabric Modeling", *2000 National Science Foundation DMII Grantee Conference*, Vancouver, Canada.
89. Peng, X.Q. and Cao, J. (1999) "Material Characterization in Forming Structural Composites", *ME100, Polytechnic University, NY*.
90. Chen J., Sherwood, J, and Cao, J. (1999) "High Volume Manufacturing of Structural Composites", *Tsai Symposium on Composites for the Next Millennium*, July 2-3, 1999, Tours, France.

ADDITIONAL CONFERENCE/WORKSHOP PRESENTATIONS

Referred and non-referred conference papers were presented at the corresponding conferences either by Jian Cao or by her students. In addition to those presentations, the following presentations were made by Jian Cao:

91. A New Experimental Apparatus for Measuring the Kinematic Hardening Behavior in Sheet Metals, 2007, CIRP January Meeting.
92. Draw-in Sensor for Real-time Measurement/Control in Sheet Metal Forming, 2006, *North American Deep Drawing Group Research Conference*.
93. CAREER Program Development, 2005, *TMS*.
94. Manufacturing Processes Research on Metals, 2004, *Interagency Meeting on Metal Research*.
95. The US National Science Foundation's Investment in Manufacturing, 2004, *China Natural Science Foundation*.
96. Intelligent Manufacturing and Maintenance System, 2004, *Manufacturing Frontier Conference*.
97. From the Nano Tech Lab to the Manufacturing Industry: The NSF Initiative, 2004, *Indo-US Advanced Manufacturing Forum*.
98. Opportunities and Challenges in Micro-forming, 2004, *Indo-US Advanced Manufacturing Forum*.
99. Current Funded Projects & Future Directions in Manufacturing Processes Research, 2003, *Interagency Meeting on Metal Research*.
100. Life Beyond the Ph.D., 2003, *National Science Foundation Division of Design, Manufacturing and Industrial Innovation Grantee Conference*.

101. Research Opportunities in Green Engineering: Bridging Design and Manufacturing, 2003, *Society of Women Engineers Conference*.
102. Engineering Applications of Newly Proposed Reproducing Kernel Element Method, 2003, *International Congress of Applied Mathematics*.
103. A Multi-Scale Meshfree Approach for Predicting Wrinkling and Experimental Verification, 2003, *US Congress of Computational Mechanics*.
104. Process Control: Hardware and Software, 2002, *North American Deep Drawing Group Research Conference*.
105. Instability Analysis – Wrinkling, 2001, *North American Deep Drawing Group Research Conference*.
106. Wrinkling Prediction in Numerical Simulations, 1999, *US Congress of Computational Mechanics*.
107. Springback in Flanging Operation, 1999, *North American Deep Drawing Group Research Conference*.

INVITED PRESENTATIONS

1. National Taiwan University, Taiwan, “Surface Texturing and Manufacturing Processes to Increase Energy Efficiency” & “Research at ME of Northwestern University”, July 13, 2009.
2. Chung Yuan Christian University, Taiwan, “Surface Texturing and Manufacturing Processes to Increase Energy Efficiency”, July 13, 2009.
3. NSF Energy Workshop, “Better efficiency by surface texturing”, June 21, 2009.
4. University of Minnesota, Twin City, “Surface Texturing and Manufacturing Processes to Increase Energy Efficiency”, April 1, 2009.
5. Society of Manufacturing Engineers Micromanufacturing Conference, “Microforming”, April 21, 2008.
6. University of Colorado, Boulder, “Material and Friction Characterization in Forming”, February 26, 2009.
7. University of Connecticut, “Material and Friction Characterization in Forming”, January 23, 2009.
8. India Institute of Technology, Kanpur, “Metal Forming: Process Innovation and Mechanics”, December 15, 2008.
9. Georgia Institute of Technology, “Material and Friction Characterization in Forming”, Oct. 24, 2008.

10. Shanghai Jiao Tong University, "Material and Friction Characterization in Forming", Sept. 22, 2008.
11. Seoul National University, Department of Materials Science and Engineering, "Incremental Forming: Advances and Challenges", Sept. 12, 2008.
12. Keynote Presentation, "Incremental Forming: Advances and Challenges", International Conference on Technology of Plasticity, Gyeongju Korea, Sept. 11, 2008.
13. General Electric, "Surface Engineering and its Effect on Friction Control", July 22, 2008.
14. Society of Manufacturing Engineers Micromanufacturing Conference, "Microforming", April 21, 2008.
15. General Motors, "Integrated Sensing System for Stamping Monitoring and Control", April 18, 2008.
16. University of North Carolina, Charlotte, "Mechanics and Control of Deformation Processes", March 18, 2008.
17. University of California, Irvine, "Micromanufacturing and Microfluidics Research at Northwestern", with W.K. Liu, Feb. 28, 2008.
18. California State University, Fullerton, "Introduction of Research at the Department of Mechanical Engineering at Northwestern University", Feb. 27, 2008.
19. 2008 NSF Engineering Research and Innovation Conference in Knoxville, Tennessee, U.S.A. "An American Manufacturing Innovation Initiative", Jan. 10, 2008.
20. 14th International Symposium on Plasticity and its Current Applications in Kailua-Kona, Hawaii, U.S.A, "Experimental and Numerical Investigation of Combined Isotropic-kinematic Hardening Behavior", Jan. 4, 2008.
21. International Symposium on Automotive Sheet Metal Forming, India, Dec. 17, 2007, "Predictability of Numerical Simulations".
22. Keynote, International Conference on Future Trends in Composite Materials and Processing, India, Dec. 14, 2007, "Material Characterization of Woven Composites".
23. Keynote, International Conference on Intelligent Textiles, Seoul, South Korea, Nov. 12, 2007, "Material Characterization of Woven Composites".
24. INSA-Lyon (Institut National des Sciences Appliquées de Lyon), France, Sept. 20, 2007, « Size Effects in Woven Composites and Metals ».
25. Ford Motor Company, Dearborn, Michigan, September 7, 2007, "Enhancing Interface Performance through Surface Texturing".
26. Workshop on Advanced Technologies for New Materials, Taiwan, July 16, 2007, « Develop Computer-Integrated Systems for Composite Sheet Forming Processes From Micro to Macro Scale ».

27. SME Micromanufacturing Conference (short course), March 13, 2007, "Fundamentals and Challenges in Microforming".
28. University of Stuttgart, Institute of Metal Forming, Germany, Oct. 5, 2006, "Mechanics and Control of Sheet Metal Forming Processes in Automotive Applications".
29. General Motors, September 29, 2006, "An Investigation of Surface Distortion in Line Dies".
30. University of Michigan, Ann Arbor, September 28, 2006, "Manufacturing at Multi-scales".
31. Tokyo University of Agriculture and Technology, Japan, July 14, 2006, "Mechanics and Control of Sheet Metal Forming Processes".
32. Nagoya Institute of Technology, Japan, July 7, 2006, "Fundamentals and Challenges in Microforming".
33. Toyota, July 7, 2006, "Characterization of Wrinkling and Draw-in in Sheet Metal Forming".
34. Chung Yuan Christian University, Taiwan, July 5, 2006, "Fundamentals and Challenges in Microforming".
35. Shanghai JiaoTong University, China, June 28, 2006, "Advances in Metal Forming".
36. Boeing Phantom Works, St Louis, Missouri, June 13, 2006, "Manufacturing at Multi-scales".
37. General Motors, Michigan, April 3, 2006, "Prediction of Surface Distortion".
38. Univ. of Massachusetts, Lowell, April 21, 2006, "Career Program Development".
39. The Chinese University of Hong Kong, Hong Kong, January 18, 2006, "Manufacturing at Multi-scales".
40. HuaZhong University of Science and Technology, China, January 16, 2006, "Mechanics and Control of Sheet Metal Forming Processes".
41. Hong Kong University of Science and Technology, January 13 2006, "Material Characterization of Woven Composites".
42. Purdue University, December 15, 2005, "Manufacturing at Multi-scales".
43. M.I.T., November 29, 2005, "Manufacturing at Multi-scales".
44. Unico, Inc., Wisconsin, November 22, 2005, "Real-time Calculation of Optimal Blank Holder Force History in Sheet Metal Forming".
45. IMECE Panel on Biomanufacturing, November 10, 2005, "Micromanufacturing".
46. General Motors, Michigan, October 27, 2005, "Characterization of Draw-in and Wrinkling in Sheet Metal Forming".
47. Shanghai JiaoTong University, China, Oct. 11, 2005, "Innovative Processes for Sustainable Manufacturing".
48. Plenary Talk: M&P 2005, Seattle, WA, June 21, 2005, "Manufacturing at Multi-scales".
49. Drexel University, September 23, 2005, "Manufacturing at Multi-scales".

50. Clemson University, August 30, 2005, "Mechanics and Control of Sheet Metal Forming Processes in Automotive Applications".
51. Georgia Tech Institute of Technology, Oct. 29, 2004, "Microforming: Study of Grain Size and Friction Effects in the Extrusions of Micropins".
52. Purdue University, Oct. 12, 2004, "Current Activities and Future Directions in Manufacturing Processes Research".
53. Hong Kong University of Science and Technology, December 9, 2003, "Fundamentals of Forming at Multiple Scales".
54. Ohio State University, November 13, 2003, "Understanding the Material Processing & Manufacturing Program".
55. National Science Foundation, May 27, 2003, "Sheet Forming and Looking Beyond".
56. New Jersey Institute of Technology, November 13, 2002, "Modeling Tools and Forming Technologies for the Enhancement of Design Attributes".
57. Michigan Technological University, November 1, 2001, "Modeling Tools and Forming Technologies for the Enhancement of Design Attributes".
58. University of Leuven, Belgium, April 23, 2001, "The Relationship between Materials Characterization Methods and Material Models for Stamping of Woven Fabric/Thermoplastic Composites".
59. MSC, Inc., Illinois, December 17, 2000, "Analysis of the Softcoil Problem".
60. Illinois Institute of Technology, November 29, 2000, "Material Characterization in Forming Structure Composites".
61. Rensselaer Polytechnic Institute, September 22, 2000, "Material Characterization in Forming Structure Composites".
62. General Electric, September 21, 2000, "Material Characterization in Forming Structure Composites".
63. University of Nevada, Reno, September 14, 2000, "Material characterization and instability analysis in sheet materials forming".
64. Ford Scientific Research Lab, September 6, 2000, "Material Characterization in Forming Structure Composites".
65. National Steel Inc., September 8, 2000, "Material Characterization and Instability Analysis in Sheet Materials Forming".
66. Columbia University, July 6, 2000, "A Computer Integrated System for Sheet Forming".
67. Northeastern University, May 12, 2000, "Modeling Tools and Forming Technologies for the Enhancement of Design Attributes".
68. University of Illinois, Chicago, February 17, 2000, "A Computer Integrated System for Sheet Forming".

69. General Motors, January 28, 2000, "Stamping Technologies to Reduce Weight and Lead Time".
70. University of Washington, January 7, 2000, "A Computer Integrated System for Sheet Forming".
71. Northwestern Polytechnical University, December, 1999, "Material Characterization in Forming Structure Composites".
72. Georgia Institute of Technology, September 7, 1999, "A Computer Integrated System for Sheet Forming".
73. University of Maryland, College Park, July 21, 1999, "A Computer Integrated System for Sheet Forming".
74. Women in Engineering, University of Maryland, July 23, 1999.
75. Keynote, 'Plasticity in Manufacturing Processes & Product Performance' at 13th U. S. National Congress of Applied Mechanics, Gainesville, Florida, 21-26 June 1998.
76. University of Massachusetts, Lowell, September 15, 1998, "A Computer Integrated System for Sheet Forming".

PROFESSIONAL ACTIVITIES

Editorships

Associate Editor, ASME *Journal of Manufacturing Science and Engineering*, April 2003 – 2009.

Associate Editor, ASME *Journal of Applied Mechanics*, October 2005 – present.

Scientific Committee, *International Journal of Materials Forming*, Springer, October 2007 – present.

Guest editor, ASME *Journal of Engineering Materials and Technology*, October, 2001.

Member, International Editorial Advisory Board of *Chinese Journal of Mechanical Engineering-English Edition*, distributed by ASME, October 2001 – present.

Committee Memberships

Chair, Administration and Finance Committee, ASME Technical Communities, July 2009 – June 2012.

Vice Chair, Manufacturing Group, ASME, July 2009 – June 2010.

Secretary, SME/North America Manufacturing Research Institution, May 2009 – May 2010.

Executive Committee, ASME Manufacturing Engineering Division, July 2004– June 2009.

Incoming Member	July 2004 – June 2005
Secretary	July 2005 – June 2006
Program Chair	July 2006 – June 2007
Vice Chair	July 2007 – June 2008
Chair	July 2008 – June 2009

Board Member, SME/North America Manufacturing Research Institution, May 2004 – May 2010.

Member, ASME Manufacturing Technology Group Operating Boards, July 2008 – June 2009.

Member, Scientific Committee, ESAFORM (European Scientific Association for material FORMing), April 2006 – present. (2006 was the first year that ESAFORM invited researchers outside of Europe to be on the Scientific Committee)

Member, Scientific Committee, International Conference on Technology of Plasticity, September 2008.

Member, Scientific Committee, NUMIFORM'07, June 2007.

Member, Organization Committee, 2nd International Conference on Micromanufacturing, Clemson, SC, 2007.

Member, Organization Committee, 1st International Conference on Micromanufacturing, Urbana, IL, 2006.

Member, Program Committee, International Conference on Frontiers of Design and Manufacturing, 2006.

Member, Scientific Committee, NAMRC, 2005 – present.

Member, Executive Committee, North American Deep Drawing Research Group, March 2003 – June 2006.

Member, Technical Committee, 8th International Conference on Numerical Methods of Industrial Forming Processes, NUMIFORM'2004, Columbus, Ohio.

Member, Technical Committee, NUMISHEET'2005, Detroit, Michigan.

Member, USA program committee, 2004 Japan-USA Symposium on Flexible Automation, Denver, U.S.A.

Chair, Program Committee of ASME Manufacturing Engineering Division, May 2001 – Nov. 2002

Chair, Committee on Integration of Computational Mechanics and Manufacturing (ICMM), US Association for Computational Mechanics, December 1999 – present

Chair, Committee on Materials Processing and Manufacturing, Applied Mechanics Division, ASME, Nov. 2001 – Nov. 2003.

Member, USA program committee, 2002 Japan-USA Symposium on Flexible Automation, Hiroshima, Japan.

Member, International executive committee, the 10th JSME/ASME Materials and Processing Conference, U.S.A., Oct. 15-18, 2002.

Vice-Chair, Committee on Materials Processing and Manufacturing, Applied Mechanics Division, ASME, Nov. 1999 – Nov. 2001.

Scientific Committee Member, WSES International Conference on Mathematics and Computers in Mechanical Engineering, Marathon, Florida Keys, Florida, July 25-29, 1999

Liaison Officer, Manufacturing Engineering Division of ASME, Nov. 1998 – May 2001.

Organizers

Program Chair, 2010 ASME/JSME International Flexible Automation, Tokyo, Japan.

Program co-Chair, ASME Nanoengineering for Medicine and Biology, Feb. 2010.

Conference Chair, ASME International Conference of Manufacturing Science and Engineering & JSME Materials & Processing, Evanston, IL, Oct. 2008.

Conference co-Chair, 6th International Workshop on Microfactories, Evanston, IL, Oct. 2008.

Co-organizer, Mini-symposium on Composites, ESAFORM 2008, Lyon, France, April 2008.

Organizer, Panel on Coping with the CAREER Award, National Science Foundation DMII Grantee Conference, TN, January 2008.

Co-organizer, CAREER Proposal Writing Workshop, sponsored by NSF, March 23-26, 2007.

Co-organizer, Workshop on Advanced High-Strength Steels, co-sponsored by NSF, DoE and ASP, October 22-23, 2006.

Co-organizer, Mini-symposium on Composites, ESAFORM 2007, Spain, April 2007.

Co-organizer, CAREER Proposal Writing Workshop, sponsored by National Science Foundation, April 6, 2006.

Co-organizer, Mini-symposium on Composites, ESAFORM 2006, April 2006.

Co-organizer, CAREER Proposal Writing Workshop, sponsored by National Science Foundation, May 24, 2005.

Co-organizer, Mini-symposium on Composites, ESAFORM 2005, April 2005.

Co-organizer, CAREER Proposal Writing Workshop, sponsored by National Science Foundation, Nov. 13, 2004.

Organizer, Symposium on Computational Methods in Sheet Forming, *Sixth World Congress on Computational Mechanics*, Beijing, China, September 5-10, 2004

Chair, Benchmark Analysis Summary Committee, *NUMISHEET2005*, Detroit, September, 2005.

Organizer, Benchmark Analysis on Composite Sheet Forming, 2002 – present.

Organizer, Symposium on Materials Development and Utilization in Forming, *International Mechanical Engineering Congress and Exposition*, New York, New York, November, 2001.

Organizer, National Science Foundation Workshop on Composite Sheet Forming, Lowell, Massachusetts, September, 2001.

Organizer, CAREER Workshop at *the 2001 National Science Foundation Design and Manufacturing Research Conference*, Tampa, Florida, January, 2001.

Organizer, Symposium on Advances in Metal Forming, *International Mechanical Engineering Congress and Exposition*, Orlando, Florida, November, 2000

Co-Organizer, Session "Affordable Composites Manufacturing: New Advances in Forming, Stamping, and other rapid processing methods", at the *15th Annual Technical Conference of the American Society for Composites (ASC)*, Texas, September, 2000.

Organizer, CAREER Workshop at *the 2000 National Science Foundation Design and Manufacturing Research Conference*, Vancouver, British Columbia, Canada, January, 2000.

Co-Organizer, Session 'Engineering Mechanics in Manufacturing Processes and Material Processing', ASME summer conference, McNu'97, Evanston, Illinois, July 1997.

NU Service

Member, The Limited Submissions Advisory Committee, Northwestern University, Sept. 2009 – August 2010.

Member, Faculty Search Committee, Sept. 2009 – Feb. 2010.

Chair, ME Graduate Studies, Mechanical Engineering, Sept. 2007 – August 2012

Member, General Faculty Committee, Northwestern University, Sept. 2008 – August 2011

Member, ME Machine Shop Oversight Committee, Sept. 2008 – August 2009

Member, Faculty Search Committee, Mechanical Engineering, Oct. 2007 – May 2008

Interim Associate Chair, Mechanical Engineering, Sept. 2006 – August 2007

Speaker, NSF Graduate Fellowships Meeting, Oct. 2, 2007

Speaker, Navigating the Professoriate Program: Grantsmanship and Identifying Funding Opportunities, April 5, 2007.

Member, Energy Committee, Mechanical Engineering, Jan. 2006 – June 2006.

Organizer, Mechanics Colloquia Seminar Series, 2001 – Sept. 2003.

Editor, Newsletter of Department of Mechanical Engineering, 1998 – Sept. 2003

Member, Faculty Search Committee, Industrial Engineering, Oct. 2002 – June 2003.

Member, Faculty Search Committee, Mechanical Engineering, Sept. 2001 – Sept. 2002

Member, Committee on Classrooms of the Searle Center for Teaching Excellence, January - June, 2000.

Member, Faculty Search Committee, Mechanical Engineering, August 1999 – January 2000.

Creator, ME Design and Manufacturing Group Web Site, 1998.

Member, College Curriculum Committee, Northwestern University, Fall 1997.

National Science Foundation (NSF) Service

Panelist, the World Technology Evaluation Study on Advanced Manufacturing, www.wtec.org/advmfg, sponsored by NSF.

Initiated the World Technology Evaluation Study on Micro-manufacturing, www.wtec.org/micromfg, Dec. 2003 – September 2005, co-sponsored by NSF, ONR, DOE and NIST.

Co-initiated joint proposal review and co-funding for proposals in the area of predictive polymer processing between NSF/DMII and DOE, 2005.

Co-initiated joint proposal review and co-funding for proposals in the area of coating and deposition between NSF/DMII and NSF/CMS, 2004 – 2005.

Co-initiated joint proposal review and co-funding for proposals in the area of thermo-related processes between NSF/DMII and NSF/CTS, 2004.

Co-sponsored the CAREER proposal writing workshop, November 2004

Co-sponsored the CAREER proposal writing workshop, May 2005.

Co-sponsored the Predictive Modeling workshop, July 2005.
Initiated and sponsored the Biomanufacturing workshop, June 2005.
Member, Engineering workgroup on Cyberinfrastructure, 2005

Reviewer/Panelist

Proposals to NIST/ATP
Proposals to DoD
Proposals to the National Research Council
NSF Review Panelist for Division of Civil and Mechanics System
NSF Review Panelist for Division of Design, Manufacturing and Industrial Innovation
NSF Review Panelist for NSF Graduate Fellowship
NSF Review Panelist for SBIR/STTR Program
ASME Journal of Applied Mechanics
ASME Journal of Engineering Materials and Technology
ASME Journal of Manufacturing Science and Engineering
ASTM Journal of Testing and Evaluation
Computational Material Sciences
Composites: Part A
Composites Science and Technology
Experimental Mechanics
International Journal of Mechanical Sciences
International Journal of Machine Tools and Manufacturing
International Journal for Numerical Methods in Engineering
International Journal of Plasticity
International Journal of Solids and Structure
Journal of Materials Processing Technology
SAE Journal of Materials & Manufacturing
SME Journal of Manufacturing Processes
SME Journal of Manufacturing System
SME Transaction of North American Manufacturing Research Institution

Other Activities

Judge, Student Oral Presentation and Posters, HBCU-UP conference, Washington, D.C.,
October 2007.

Professeur invité, L'Institut National Des Sciences Appliquees de Lyon, France, June – Sept. 2007.

Member, Strategic Planning Committee, School District 37, Illinois, 2003.

Activity officer of the Mechanical Engineering Women Graduate Association, MIT, 1994-1995.

Selected participant for the NSF New Century Scholars Workshop, Stanford University, August 2-7, 1998.

Member, ASME (American Society of Mechanical Engineers),
SAE (Society of Automotive Engineers),
SME (Society of Manufacturing Engineers),
IDDRG (International Deep Drawing Research Group),
ASC (American Society of Composites)

STUDENTS GRADUATED

Ph.D. Students:

Hong Yao, Mechanical Engineering, June 2000, *Process Design and Failure Analysis of Three Dimensional Sheet Metal Forming Using Simplified Numerical and Analytical Models*, currently Sr. Research Engineer, Mittal Steel USA.

Xi Wang, Mechanical Engineering, December 2000, *Stress-based Wrinkling Criteria and Experimental Verification in Sheet Metal Forming*, currently Senior Software Engineer, Nicksun, Inc.

Brad L. Kinsey, Mechanical Engineering, June 2001, *A Combined Approach to Improve and Assess the Formability of Tailor Welded Blanks*, currently Associate Professor, University of New Hampshire, Durham. NSF CAREER award recipient.

Xiongqi Peng, Mechanical Engineering, December 2003, *Material Characterization and Stamping Simulation for Woven Composites*, currently Professor, Shanghai JiaoTong University, China.

Thaweeapat Buranathiti, Mechanical Engineering, June 2005, *Design and Optimization under Uncertainty in Sheet Metal Forming Processes Constrained with Failure Analysis*, currently Lecturer, King Mongkut's University of Technology, Thonburi.

Neil Krishnan, Mechanical Engineering, June 2006, *Microforming: Experimental Investigation of Size Effects in the Extrusion of Micropins*, currently Development Engineer, Diamond Innovations.

M.S. Students:

Brad L. Kinsey, Mechanical Engineering, June 1998, *Process Control in Sheet Metal Forming*, currently Associate Professor, University of New Hampshire, Durham.

Nan Song, Mechanical Engineering, December 2000, *Springback Prediction of Straight Flanging Operation*, currently R&D Software Developer, Bloomberg, L.P.

Vikram Viswanathan, Mechanical Engineering, December 2000, *Experimental Investigation of Forming Limit Curve for Tailor Welded Blanks and Physical Implementation of Neural Network for Springback Control*, currently Sr. Business Analyst, A.T. Kearney.

Neil Krishnan, Mechanical Engineering, December 2003, *Estimation of optimal blank holder force trajectories in segmented binders using an ARMA model*, currently Development Engineering, Diamond Innovations.

Shawn Cheng, Mechanical Engineering, June 2004, *Experimental study on wrinkling characterization and an accelerated method for springback compensation*, currently a Ph.D. student at Northwestern.

Numpon Mahayotsanun, Mechanical Engineering, June 2005, Draw-in sensor for sheet metal forming, currently a Ph.D. student at Northwestern.

Anthony Swanson, Mechanical Engineering, June 2006, Experimental analysis of die wear in deep drawing with nanometer precision, currently a consultant in Chicago.

CURRENT RESEARCH PERSONNEL

Post-doctoral Fellows:

Dr. Ying Huang (2006 – 2008)

Ph.D. Students:

Mr. Shawn Cheng (expected 2009)
 Mr. Numpon Mahayotsanun (expected 2009)
 Miss Tiffany Davis (expected 2010)
 Mr. Rui (Ray) Zhou (expected 2011)
 Mr. Rajiv Malhotra (expected 2011)

M.S. Students:

Mr. Michael Beltran (expected 2009)

Undergraduate Students:

Mr. Drew Price (expected 2009)
 Mr. Jeffrey Shih (expected 2011)
 Mr. Stephen Guerin (expected 2011)

RESEARCH PERSONNEL SUPERVISED

Post-doctoral Fellows:

Dr. Wonoh Lee (2006 – 2008)
 Dr. Shunping Li (2000 – 2005)
 Dr. Kum Cheol Shin (2003 – 2004)
 Dr. Hongsheng Lu (2002 – 2004)
 Dr. Xue (Patricia) Pu (2000 – 2002)
 Dr. Zhihong Liu (1998 – 1999)
 Dr. Choong Ho Lee (1998 - 1999)

Visiting Scholar:

Prof. Yun Wang (2008)
 Prof. Xudong Kang (2008)
 Prof. Zhong Wang (2003 – 2004)

Dr. Riccardo Ruffini	(1997)
Mr. Steffen Hägebarth	(2004)
Mr. Anupam Agrawal	(2006)
Prof. Venkat Reddy	(2006 – 2007)
Prof. Yongjun Wang	(2007 – 2008)

Undergraduate Students:

Miss Mikenzie Steffens	(graduated 1999)
Mr. Joseph Goode	(graduated 2000)
Mr. Francis Joe Mills	(graduated 2001)
Mr. Alexander J. Ellis	(graduated 2002)
Mr. Peter J. Leonard	(graduated 2002)
Mr. Sasawat Mahabunphachai	(graduated 2002)
Mr. Ibrahim Khalid Sahouh	(graduated 2008)
Miss Kristi Bond	(graduated 2008)
Miss Julia Padvoiskis	(graduated 2008)
Mr. Phillip Ahn	(graduated 2008)
Mr. Ben Schriesheim	(graduated 2008)
Miss. Rachel Cohen	(expected 2010)

AWARDS STUDENTS RECEIVED

Xi Wang, Terminal Year Cabell Fellowship, Northwestern University, 2000.

Brad L. Kinsey, ASME Student Design Manufacturing Competition, 3rd Place, 1998

Xiongqi Peng, Terminal Year Cabell Fellowship, Northwestern University, 2003.

Numpon Mahayotsanun, NADDRG Student Presentation Award, 2007

Tiffany Davis, NU Research Implementation Award, 2007

Tiffany Davis, NSF Fellowship, 2007

Michael Beltran, NSF Fellowship Honorable Mention, 2008

Ibrahim Khalid Sahouh, Undergraduate Research and Innovation Award, Mechanical Engineering, Northwestern University, 2008

Huang, Y., Cao, J., Smith, S., Woody, B., Ziegert, J., and Li, M., Finalist, Best Paper Award, "Studies of Size Effect on the Formability of a Domed Part in Incremental Forming", MSEC-72545, Proceedings of the 2008 International Manufacturing Science and Engineering Conference, MSEC2008, October 7-10, 2008, Evanston, Illinois, USA.

Rui Zhou and Ibrahim K. Sahouh, 3rd place, 2008 ASME Student Manufacturing Design Competition, MSEC 2008, October 7-10, 2008, Evanston, Illinois, USA.

GRADUATE THESIS COMMITTEES

Hanxin Zhao Ph.D. Final Thesis Defense 2000

Yongping Gong	Ph.D. Final Thesis Defense	2001
Anuradha Bulusu (UMass)	M.S.	2001
Alan Jacobsen	Ph.D. Final Thesis Defense	2002
Rong Wang	M.S.	2003
Jason T. Brzozwski	M.S.	2003
Jennifer Gorczyca	Ph.D. Final Thesis Defense	2004
Erick Haro	M.S.	2005
John Bayldon	Ph.D. Final Thesis Defense	2006
Huyue Zhao	Ph.D. Qualifying Exam	2006
XiaoLei Yin	Ph.D. Qualifying Exam	2006
Jui-Ying Chen	Ph.D. Qualifying Exam	2006
Wei Chen	Ph.D. Qualifying Exam	2006
John Bayldon	Ph.D. Final Thesis Defense	2007
Richard Onyancha	Ph.D. Final Thesis Defense	2007
Sripati Sah	M.S. Thesis Defense	2007
Quan Situ	Ph.D. Final Thesis Defense	2008
Huyue Zhao	Ph.D. Final Exam	2008
Tom Vose	M.S. Thesis Defense	2008

SPONSORED PROJECTS

No.	Project title	Sponsor	Role	Period
43**	MRI: Development of a State-of-the-Art Laser Micro-machining and Surface Engineering System	NSF	Co-PI	9/09 – 8/11
42**	PFI: Laser-based Manufacturing and Materials Processing	NSF	co-PI	9/09 – 8/11
41	Variation Control in Micro-stamping	NSF	PI	9/09 – 8/12
40	Incremental Forming at Multi-scales – RET supplement	NSF	PI	9/08 -8/10
39	Exploratory Study on Shaping Titanium Electrode	GE	PI	4/09 – 6/09
38	Continuous Micro Roll Forming to Enable Energy Efficiency Devices	NU/ISEN	PI	5/09 – 9/ 09
37**	TACOM	DoD	Senior Personnel	5/09 – 04/10
36*	Collaborative Research: Deformation Machining - A New Hybrid Process – REU supplement	NSF	Co-PI	04/08 – 03/10
35	An Investigation of Surface Distortion of Line Dies - supplement	GM	PI	11/06-10/08
34*	GOALI/Collaborative Research: Integrated Sensing System for Stamping Monitoring and Control – supplement	NSF	PI	9/06 – 8/08
33**	A Bayesian Treatment of Uncertainty in Simulation-Based Methods for Enhancing Process and Product Robustness	NSF	Co-PI	06/08 – 06/11
32*	Collaborative Research: Deformation Machining - A New Hybrid Process	NSF	Co-PI	04/08 – 03/10
31	Incremental Forming at Multi-scales	NSF	PI	9/07-8/10
30**	NSF Summer Institute on Nano-Mechanics, Nano-Materials and Micro/Nano-Manufacturing	NSF	Co-PI	10/07-9/12
29*	Center for Multi-scale Virtual Design and Manufacturing	DOE/ ORNL	Co-PI	5/07-5/09
28**	CI-TEAM Implementation Project: Collaborative Research-A National	NSF	Co-PI	1/07 – 12/08

	Engineering Dissection Cyber-Collaboratory			
27	An Investigation of Surface Distortion of Line Dies	GM	PI	11/06-03/08
26*	Enhancing Interface Performance Through Surface Texturing	Boeing & Ford	PI	10/06 – 3/08
25*	GOALI/Collaborative Research: Integrated Sensing System for Stamping Monitoring and Control	NSF	PI	9/06 – 8/08
24**	Building a State-of-the-Art Laser-Based Surface-Texturing Instrument	NSF	Co-PI	9/06 – 8/08
23	SGER/GOALI/Collaborative Research: Deformation Machining - A New Hybrid Process	NSF	PI	5/06-4/08
22	Tool wear of high strength stamping die	Ford	PI	9/05 – 8/08
21	A Post-Process Tool for Detecting Surface Distortion in Stamping	GM	PI	11/05 – 10/06
20	Enhancing the understanding of the Fundamental Mechanisms of Thermoforming Woven Composites to Develop a Comprehensive Design Tool	NSF	PI	6/03 – 5/08
19	IREE Supplement to Collaborative Research: Enhancing the Understanding of the Fundamental Mechanisms of Thermoforming Woven Composites to Develop a Comprehensive Design Tool	NSF	PI	8/05-5/08
18	REU Supplement to Collaborative Research: Enhancing the Understanding of the Fundamental Mechanisms of Thermoforming Woven Composites to Develop a Comprehensive Design Tool	NSF	PI	4/04 – 5/08
17	Forming of Can Lid	REXAM	PI	9/02 – 6/03
16	Material Variability and Stamping Robustness	FORD	PI	03/02-02/05
15*	A Multi-Scale Approach for Predicting Wrinkling and its Experimental Validation	NSF	PI	09/01-08/04
14	Workshop on composite sheet forming	NSF	PI	05/01-11/01
13	An approach for model validation in simulating sheet metal forming processes	NSF	PI	09/00 - 2/02
12*	Intelligent material and process design for stamping of structural composites	NSF	Co-PI	04/99 - 03/02

11	CAREER: Tooling design and failure analysis in sheet metal forming	NSF	PI	07/97-06/02
10	A stress-based wrinkling criterion and its experimental verification	NSF	PI	09/97-08/01
9	Composite sheet forming	FORD	PI	
8	CAREER matching fund	FORD	PI	
7	A study on soft coil issue	MSC	PI	2001
6**	Design algorithm for optimizing stamping steps of axisymmetric parts	FORD	PI	2000
5	A simplified 2D model for predicting corner failure	GM	PI	07/97-01/99
4	Wrinkling prediction	GE	PI	3/97 - 12/98
3*	Springback Prediction	FORD	Co-PI	03/98-03/99
2	A study in sheet metal forming	ALCOA	PI	1997
1	A die design algorithm for stamping	NSF	PI	06/96-09/97

* Two PIs on this project.

** Multiple PIs on this project.