

Professor Jun Ni

Co-Director
Intelligent Maintenance Systems Center
Department of Mechanical Engineering
The University of Michigan

A. Professional Preparation

Univ. of Wisconsin-Madison	Mechanical Eng.	Ph.D.	1987
Univ. of Wisconsin-Madison	Mechanical Eng.	MS.	1984
Shanghai Jiao Tong University	Mechanical Eng.	B.S.	1982

B. Appointments

9/97 - Present	<i>Professor</i> – Dept. of Mech. Eng. & Applied Mech. at U-M.
9/93 - 8/97	<i>Associate Professor</i> – Dept. of Mech. Eng. & Applied Mech. at U-M.
9/89 - 8/93	<i>Assistant Research Scientist</i> –Dept. of Mech. Eng. & Applied Mech. at U-M
9/87 - 8/89	<i>Research Fellow</i> –Dept. of Mech. Eng. & Applied Mech. at U-M

C. Publications (Over 120 publications in refereed journals and conferences.)

(i) Selected 5 Publications Relevant to the Proposed Research:

1. F. Shen, J. Ni and S.M. Wu, 1989, "Design and Implementation of a Modular Multi-Processor System for Machine Monitoring and Diagnostics", *Transaction of NAMRI*, Vol. 17, pp.319-324
2. S. Y. Hong, J. Ni, and S. M. Wu, 1994, "Preventive Diagnosis of Minor Machine Failure by DDS Spectrum Analysis", ASME Transaction, *Journal of Engineering for Industry*, Vol.116, No.1, pp.130-133.
3. S. Y. Hong, J. Ni, and S. M. Wu, 1996, "Analysis of Drill Failure Modes by Multi-sensors on a Robotic Drilling End Effector", ASME Transaction, *Journal of Manufacturing Science and Engineering*, Vol. 118, No.3.
4. J. Ni, 1997, "CNC Machine Accuracy Enhancement Through Real-Time Error Compensation", an invited ASME Transaction paper, *Journal of Manufacturing Science and Engineering*, Vol. 119, No.4(B), pp.717-725.
5. A. Khan, D. Ceglarek, and J. Ni, 1998, "Sensor Location Optimization for Fault Diagnosis in Multi-Fixture Assembly Systems," ASME Transactions, *Journal of Engineering for Industry*, Vol.120, No.4, pp.781-792

(i) Other 5 Publications Relevant to the Proposed Research:

6. A. Khan, D. Ceglarek, J. Shi, J. Ni, and T. C. Woo, 1999, " Sensor Optimization for Fault Diagnosis in Single Fixture Systems: A Methodology," ASME Transactions, *Journal of Manufacturing Science and Engineering*, Vol.121, No.1, pp. 109-117
7. C. K. H. Koh, J. Shi, W. J. Williams, and J. Ni, 1999, "Multiple Fault Detection and Isolation Using the Harr Transform— Part: I: Theory; Part: II: Application to Stamping Process," ASME Transactions, *Journal of Manufacturing Science and Engineering*, Vol. 121, No.2, pp.290-294, pp.295-299
8. W. Li, J. S. Hu, and J. Ni, 1999, "Online Expulsion Detection and Estimation for Resistance Spot Welding," *Transaction of NAMRI*, Vol. 27, pp.123-128.
9. C. Gong, J. Yuan, and J. Ni, 2000, "A Self-calibration Method for Robotic Measurement System," ASME ASME Transaction, *Journal of Manufacturing Science and Engineering*, Vol. 122, No. 1, pp 174-181.

10. G. Q. Chen, J. Yuan, and J. Ni, 2001, "A Displacement Measurement Approach for Machine Geometric Error Assessment," *International Journal of Machine Tools & Manufacture.*, Vol. 41, pp. 149-161.

D. Synergistic Activities

- (i) **Leadership in Manufacturing Research:** This investigator has been very active in conducting manufacturing research while at the same time serving as the director of S. M. Wu Manufacturing Research Center at the University of Michigan. This research center has been internationally recognized for its creative research in manufacturing science and engineering, and for its impact on industrial implementations. Many graduate students have received balanced training in conducting fundamental academic research and applying their results to industry.
- (ii) **Innovations in Teaching and Training:** This investigator has also been actively teaching both undergraduate and graduate courses in design and manufacturing, and supervising graduate research and undergraduate independent study projects. In addition, he has developed and maintained student exchange programs with many institutions in Germany, Poland, China, Korea, Japan, and South Africa.
- (iii) **Active Participation in Professional Society:** Dr. Ni has actively participated in a number of professional societies including ASME and NAMRI/SME. He is currently serving as a member of the Executive Committee of the Manufacturing Engineering Division of ASME. He also actively served on the Scientific Committee of NAMRI/SME for the last six years.
- (iv) **Organization of Technical Conferences:** Dr. Ni has contributed to the organization of more than 8 national and international conferences as chair, co-chair, and members of organizing committees. He has also been invited to deliver keynote speeches or invited presentations at many symposia and workshops.

E. Collaborators & Other Affiliations

- (i) **Collaborators:**
J. Hu, J. Shi, J. Yuan, Y. Koren, G. Ulsoy, (all from the University of Michigan), R. DeVor, and S. Kapoor (University of Illinois at Urbana-Champaign), K. Ehmann (Northwestern University), J. Lee (University of Wisconsin-Milwaukee)
- (ii) **Graduate and Post Doctoral Advisors**
Late Professor S. M. Wu
- (iii) **Thesis Advisor and Postgraduate-Scholar Sponsor**
Total number of Ph.D. graduates (28); Total number of Post Doctorate (15).
Names who graduated within 5 years: N. Hai, C. Che, C. Koh, S. Yang, H. Zhang, D. Khorzad, S. Gu, D. Apley, J. He, W. Li, S. Dyer, Y. Chen, R. Schimmel, Y. Sun, E. Al-Regib, C. Gong, G. Chen, B. Zhang, K. Mijit, K. Shin

F. Honors and Awards

- Changjiang Endowed Chair Professorship, Ministry of Education, China, 1999-2002.
- Advisory Professorship, Tsinghua University, Shanghai Jiao Tong University, Huazhong University of Science and Technology, Jilin University of Technology
- 1995 Excellence in Research Award, Department of Mechanical Engineering and Applied Mechanics, University of Michigan.
- 1994 Presidential Faculty Fellow Awards, the National Science Foundation.

- 1991 Outstanding Young Manufacturing Engineer Award, Society of Manufacturing Engineers