



## FLORIDA FORENSIC ENGINEERING, INC.

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### Elliot L. Stern, Ph.D., P.E. – Curriculum Vitae

#### Professional Education:

- Ph.D., 1989 Mechanical Engineering, University of Florida, Gainesville, FL (Phi Kappa Phi)
- M.S., 1985 Mechanical Engineering, University of Florida, Gainesville, FL
- B.S., 1983 Mechanical Engineering, Purdue University, West Lafayette, IN (National Dean's List, Phi Eta Sigma)

#### Professional Licensure:

- Professional Engineer, Florida State Board of Registration, No. 047986

#### Professional Experience:

- 08/04 – Present Florida Forensic Engineering, Inc., Tampa, FL, President, Consulting Engineer
- 08/89 – Present Independent Consultant, Tampa, FL  
Specialize in rapid, cost-effective, technical solutions and training in machining, manufacturing processes and controls, and design through modeling, testing, analysis and design. Applications in aerospace products, automotive, consumer products, machine tools and medical.
- 06/94 – Present Design & Manufacturing Solutions, Inc., Tampa, FL, President
- 08/89 – 06/94 Auburn University, Auburn, AL, Department of Mechanical Engineering  
Assistant Professor, Tau Beta Pi, Faculty Advisor, Alumni Award for Teaching Excellence
- 08/90 – 05/94 Machining Dynamics Laboratory, Auburn, AL  
Director
- 08/87 – 1989 Machine Tool Laboratory, University of Florida, Gainesville, FL  
Research Assistant
- 12/85 – 06/87 General Motors Technical Center, Technical Center, Warren, MI  
Senior Project Engineer
- 05/85 – 12/85 McDermott, Inc., Advanced Technology Division, Lynchburg, VA  
Automation Specialist
- 08/83 – 05/85 University of Florida, Gainesville, FL  
Research Assistant and Graduate Teaching Assistant
- 05/82 – 08/83 Honeywell, Inc., Tampa, FL  
Printed Circuit Board Designer

#### Instructor and Developer (Auburn University Courses):

- ME 480 Mechanical Engineering Design
- ME 485 Manufacturing Processes and Systems
- ME 562 Modal Analysis in Design Applications (applied Vibrations, theoretical and experimental)
- ME 493, 494 Advanced Projects (Capstone Design project advisor)
- MFE 686 Control of Manufacturing Processes

### Professional Affiliations and Awards:

- American Society of Mechanical Engineers, Associate Member (ASME)
- Society of Automotive Engineers (SAE)
- National Society of Professional Engineers (NSPE)
- Florida Engineering Society (FES)
- The Scientific Research Society, Sigma Xi, former Member

### U.S. Patents and Partial Foreign Patent list

- 6,443,673 Tunable boring bar for suppressing vibrations and method thereof (co-inventor)  
AU772398, WO0153025, CA2396366, EP1248692
- 6,085,121 Device and method for recommending dynamically preferred speeds for machining  
CN1271305, CN1096336, WO9915310, EP1017535, ES2149150, AU7281618
- 5,700,116 Tuned damping system for suppressing vibrations during machining (co-developed)
- 5,518,347 Tuned Damping System for Suppressing Vibrations During Machining (co-developed)  
CA2220938, WO9637338, EP0827440, RU2127180, ES2114838
- 5,593,369 Inflatable Hand Orthosis
- 5,437,611 Dynamic Brace Joint
- 5,383,827 Inflatable Hand Orthosis
- US Pat App A Water-Clear Fish Hook

### Selected Publications

- E. Stern, Compression Wave Injection: a mixture injection method for two-stroke engines based on unsteady gas dynamics (multiple publications, seminars and presentations).
- E. Stern, Understanding and Applying Machining Process Dynamics Next Generation Products Come On-Line (multiple publications, seminars, training short courses and presentations).
- E. Stern, Use of Vibrations and Modal Analysis for Machining (multiple publications).
- E. Stern, 21.8 Mechanics of Machining (Dynamics), Materials and Processes in Manufacturing, Ninth Edition, Degarmo, et al., ISBN 0-471-03306-5, John Wiley & Sons, Inc., 2003.
- J T. Black and Elliot Stern, Symposia – “History of Manufacturing, Metal Cutting: 1907 – 1997,” American Society of Mechanical Engineers / Manufacturing Engineering Division, International Mechanical Engineering Courses and Exposition, “Intelligent and Flexible Symtoms,” November 16-21, 1997.
- E. Stern, "Good Vibrations," Cutting Tool Engineering, Volume 47, Number 9, December, 1995, pp39-44.
- E.L. Stern and G. Carmichael, "Honing Comes Full Circle, Cutting Tool Engineering, April, 1995.
- E.L. Stern and R.P. Pellini, "A Study on the Effect of Tool Wear on Machining Forces," Symposium on Modeling, Monitoring and Control in Machining Processes, ASME/WAM, New Orleans, LA, November 28, 1993 – December 3, 1993.
- E.L. Stern and V.R. Govande, "The Use of Modeling and Simulation for Control of Single Point Machining Processes," Symposium on Modeling, Monitoring and Control in Machining Processes, ASME/WAM, New Orleans, LA, November 28, 1993 – December 3, 1993.
- Elliot L. Stern, "Comprehensive Control for Turning Centers," NSF Grantees Conference on Design and Manufacturing, University of North Carolina at Charlotte, Charlotte, NC, January 6-8, 1993, pp. 1673-1676.
- E.L. Stern and S. Kadiyala, "A Knowledge-Based Control Strategy for Single Point Machining," Manufacturing Review.
- E.L. Stern and S. Kadiyala, "A Comprehensive Control Strategy for Turning," Manufacturing International 1992, ASME, 1992, pp. 77-83.
- E.L. Stern, V. Govande, and S. Kadiyala, "A Feedforward Simulation for Strategic Knowledge-Based Control of Machining Process," Proceedings of the 22nd Annual Conf on Modeling and Simulation, pp. 857-864, 1991.
- E.L. Stern and S. Kadiyala, "A System Configuration for Knowledge-Based Control of Machining Centers," Proceedings of the 22nd Annual Conf on Modeling and Simulation, pp. 865-872, 1991.
- Elliot L. Stern, "Use of Modeling and Simulation for Conceptual Design," Proceedings of the 21st Annual Conf on Modeling and Simulation, pp. 1817-1823, 1990.
- E.Stern and J. Tlusty, "A Knowledge-Based Approach to High-Speed Spindle Design," Symposium on Concurrent Product and Process Design, ASME/WAM, DE-Vol. 21, PED Vol. 36, pp. 219-226, 1989.

- Jiri Tlustý, Elliot Stern, "Use of a Structural Model in Compensation for Robot Deflections," Annals of the CIRP, Vol 4/1/1985, pp 357-363.

**Research Funding:**

- "SCE99 - A Low Emission Two-Cycle Engine," John Deere Worldwide Commercial & Consumer Equipment Division, \$330,000, 1 yr, CO-PI E.L.Stern, 4/97-4/98.
- "Introduction to Team-Based Design for Students in Engineering, Business and Industrial Design," National Science Foundation, Undergraduate Curriculum and Course Development Program, \$181,970, 3 yrs, CO-PI E.L. Stern, submitted in conjunction with the Thomas Walter Center for Technology Management, Auburn, University, year 1 funded for \$100,000, 1/94-1/95.
- "Comprehensive Control for Turning Centers," National Science Foundation, DDM 91-01586, \$40,045, 1 yr, PI E.L. Stern, performance based budget increase following annual report and proposal/request, 6/93-5/94.
- "Engineering Faculty Internship," National Science Foundation, \$5,600, and Homelite/Textron, \$5,386, 1 yr, PI E.L. Stern, 6/92-12/93.
- "An Inexpensive, Non-Invasive Flow Measurement Technique," Biomedical Research Support Grant, Public Health Service, \$3,000, PI E.L. Stern, 2/92-8/93.
- "Comprehensive Control for Turning Centers," National Science Foundation, DDM 91-01586, \$160,028, 3 yrs, PI E.L. Stern, 6/91-11/94.
- Advanced Manufacturing Technology Center, Auburn University, graduate student support, \$30,000, 5/90-6/93.
- "Flexible Manufacturing Automation and Control Based on Design, Modeling and Sensor," Auburn University Competitive Research Grant-In-Aid, \$6,900, 1 yr, PI E.L. Stern, 1/90-1/91.

**Independent Consultant (Partial List):**

- Boeing Aircraft, St. Louis, MO
- Chrysler Corporation, Auburn Hills, MI
- Elmore Machine Tools, Salisbury, NC
- EZGO/Textron, Augusta, GA
- Fanuc Robots, Auburn Hills MI
- Ford Motor Company, Dearborn, MI
- Gardner Denver, Peachtree City, GA
- General Engineering Services, Inc, Atlanta, GA
- General Motors Corporation, GM Powertrain Group, Livonia, MI
- General Motors Corporation, GM Powertrain Group, Buffalo, NY
- Giddins & Lewis, Fraser, MI
- Gluckman, Newman & LeVine, PA, Tampa, FL
- Homelite/Textron, Greer, SC
- Ingersoll Milling Machine Company, Rockford, IL
- J&H Machine Tools, Inc., Charlotte, NC
- John Deere, Worldwide Commercial & Consumer Equipment Division, Charlotte, NC
- Kennametal, Inc. Latrobe, PA
- Kennametal Hertel, Germany
- Mazak Corp., Florence, KY
- McCulloch Corp., Lake Havasu City, AZ
- McDonnell Douglas Aerospace, St. Louis, MO
- Mitsui Seiki, Franklin Lakes, NJ
- Orthotic Rehabilitation Products, Inc, Tampa, FL
- Robert Bosch Corporation, Automotive Group, Charleston, SC / Immenstadt, Germany
- Romi, Brazil
- Sunnen Products Company, St. Louis, MO
- Toolcraft, Morganton, NC
- United Technologies, Pratt & Whitney Canada, Quebec, Canada
- Westinghouse Electric Corporation, Winston-Salem, NC