

CURRICULUM VITAE

CHARLES PEZESKI

PERSONAL DATA

Home Address: 240 SE Pioneer St., Pullman, WA
Date and Place of Birth: 9/11/62, Minneapolis, MN
Citizenship: U.S.

EDUCATION

Doctor of Philosophy, Mechanical Engineering, Duke University, Durham, NC; May 1987.
Dissertation: An Examination of Chaotic Motion for the Buckled Beam

Master of Science, Mechanical Engineering, Duke University, Durham, NC; August 1985.
Thesis: Detection of Signals with Unknown Frequency Spectra

Bachelor of Science, Civil Engineering, Case Western Reserve University, Cleveland, OH; May, 1982.

PROFESSIONAL EXPERIENCE

- Present Professor, School of Mechanical and Materials Engineering. Director of the Industrial Design Clinic (continuous from 1994-Present). Responsible for numerous SOTA upgrades to the learning experience, including structuring CAD across the ME Design curriculum with instructor Steve Brown. Founder, Global Design Clinic.
- 2007-2008 Dassault Systemes Ecodesign Fellow. Sabbatical fellowship, sponsored by Dassault Systemes, in residence as a Guest Professor at the Vienna Technical University, Vienna, AT. Responsibilities include advising on Ecodesign and Ecodesign Education philosophies at DS, as well as organizing templates for curriculum across the European Community. As the first DS Fellow, also responsibilities for the construction of the program for future fellows.
- 2006-2007 Chair, WSU Faculty Senate, Washington State University. Selection Committee, new President of WSU, Faculty Salary Committee, co-chair, Internationalization Task Force. Responsible for organizing Child Care Improvement for the Pullman Campus. Full Professor in rank.
- 2005-2006 Chair-Elect, WSU Faculty Senate, Washington State University. Responsible for strategic planning for the WSU system, initiation of a faculty leadership training program, increasing diversity awareness in the university curriculum, developing materials for the legislature, and assisting the Chair with his initiatives.

- 2005-2008 Associate Director, School of Mechanical and Materials Engineering. Responsible for directing and developing transformational change in undergraduate mechanical engineering and materials science curriculum in the School.
- 2004-2005 Chair, WSU Faculty Senate, Washington State University. Responsible for academic oversight and new initiatives involving faculty compensation, temporary faculty privilege revision, academic realignment, and numerous other strategic initiatives.
- 1994-2005 Associate Professor, School of Mechanical and Materials Engineering, Washington State University, Director and Founder, Industrial Design Clinic, Instructor Senior Capstone Design/Intro to design, numerical analysis. Research in signal processing automated design, helicopter acoustics, wildfire dynamics, and carbon nanotube quality control.
- 1988-1994 Assistant Professor, Department of Mechanical and Materials Engineering, Washington State University. Instructor, Numerical Analysis, Dynamics. Research in nonlinear dynamics and nonlinear signal processing.
- 1987-1988 Research Assistant Professor, Department of Mechanical Engineering and Materials Science, Duke University. Instructed undergraduate capstone design course. Research in chaotic dynamics.
- 1986-1987 Instructor, Department of Mechanical Engineering and Materials Science, Duke University. CAD instructor for undergraduate capstone design course. Purchased computing equipment and software and set up CAD lab for above-mentioned course. Instructed students in use and construction of CAD software.
- 1985-1987 System Administrator, Department of Mechanical Engineering, Duke University. System administrator for Data General Eclipse MV/8000. Assisted users and maintained local systems utilities.
- 1985-1987 Research Assistant, Department of Mechanical Engineering, Duke University. Performed simulations, analysis and experimental work on dissertation-related topics.
- 9/83-12/84 Teaching Assistant, Department of Mechanical Engineering, Duke University. Teaching assistant. Computer lab instructor for machine dynamics and kinematics course.
- Sumr 1984 Research Assistant, Department of Electrical Engineering, Duke University. Wrote software to assist research group in activities.

5/82-8/83: Process Control Engineer, Jones and Laughlin Steel Corp., Cleveland, Ohio (now LTV Steel.) Process Control Engineer, Projects Supervisor, for 80" Hot Strip Mill. Wrote database software; assisted in analysis of production problems, managed the labor gangs, advised on computer acquisitions.

RESEARCH GRANTS AND CONTRACTS

Approximately 150 sponsored senior projects through the Industrial Design Clinic, totaling ~ \$1.5M over 15 years. See sponsor list below.

Industrial Design Clinic Sponsors (many companies are multi-project sponsors – 51 companies)

ARCO – Cherry Point Refinery, Blaine, WA	Columbia Energy and Environmental Systems, Richland, WA
BBA Nonwovens, Washougal, WA	BP, Inc., Blaine, WA
ARCO – Los Angeles, CA	Hamilton/Sundstrand, Inc., San Diego, CA
USS-Posco, Pittsburg, CA	US Bureau of Reclamation, Grand Coulee, WA
Frigoscandia Corp., Beaverton, OR	Puget Sound Energy, Bellevue, WA
FMC-FoodTech, Redmond, WA	Naval Undersea Warfare Center, NAVSEA-Keyport, WA
Tektronix Corp., Beaverton, OR	Classic Reflections Coachworks, Lakewood, WA
Kaiser Aluminum, Mead Works, Spokane, WA	LSI Logic, Gresham, OR
Precor Corp., Woodinville, WA	Micron Corporation, Boise, ID
Flow International, Kent WA	Infinia Corp., Kennewick, WA
Battelle/PNW Labs, Richland, WA	Key Technologies, Walla, Walla, WA
Ore-Met Titanium, Albany, OR	AREVA Corporation, Richland, WA
NW Plastics Recovery, Seattle, WA	Belshaw Brothers, Seattle
Merlyn Products, Spokane, WA	Hydramaster, Inc., Mukilteo, WA
Sandvik Special Metals, Kennewick, WA	Strawjet, Inc., Ashland, OR
Mann Corporation, Granite Falls, WA	Weyerhaeuser, Inc., Aberdeen, WA
Boeing Company, Seattle, WA	Genie Industries, Redmond, WA
Advanced Silicon Materials, Moses Lake, WA	US Army Corps of Engineers, Grand Coulee Dam
Pullman School District, Pullman, WA	Pactool, Inc., Kingston, WA
Clean Washington Center, Seattle, WA	Wagstaff, Inc., Spokane, WA
Puget Power/Montana Power, Colstrip, MT	Ellison Industries, Renton, WA
Bechtel National Corporation, Richland, WA	Lamb-Weston, Con-Agra Foods, Hermiston, OR
Siltronic Corporation, Portland, OR	Nucor Steel, Seattle, WA
Precision Castparts Corp., Portland, OR	Richmond Systems, Olympia, WA
Puget Sound Naval Shipyard, Bremerton, WA	
Stirling Technologies, Kennewick, WA	
Colmac Coil, Colville, WA	

Since its inception the industrial design clinic has increased its yearly donation rate from 30K-50K to 150K-180K and provided benefits to the School in terms of equipment purchase and donation for various classes, and cash donations to student groups.

Siemens Corp. -- \$21K for The Mexico Greenhouse Research Student Exchange Project

Boeing Company -- \$99K for founding the Global Design Clinic. December, 2006.

British Nuclear Fuels Limited—"Testing of Facilities for K-Basin Transfer" 2004-2005, \$101,000

National Science Foundation Award, "Engineering Informatics—An Integrated Approach" 2003-2004, \$100,000

Instructional Grant, Potlatch Corporation, \$10,000.

ASEE/Air Force Summer Faculty Research Program, \$17,000, 6/93-8/93.

NASA Graduate Student Researchers Program, \$66,000, 9/93-8/96.

NASA Graduate Student Researchers Program, \$22,000, 6/92-5/93.

ASEE/NASA Summer Faculty Fellowship, NASA Ames Research Center, \$11,000, 6/92-8/92.

ASEE/NASA Summer Faculty Fellowship, NASA Ames Research Center, \$9,000, 6/91-8/91.

Office of the Navy/David Taylor Research Center/American Society of Engineering Education
Summer Faculty Fellowship, \$9,000 6/90-8/90

WSU College of Engineering Research Grant, \$13,600, 9/90-8/91

DOE ERLE Grant, \$18,000

Energy Related Laboratory Equipment Grant

WSU, OGRD Internal Grant, \$9,200, 7/89 - 6/90

AWARDS

Dassault Systemes Ecodesign Fellowship -- \$40K, Original Awardee.

Marian E. Smith Faculty Achievement Award Finalist, 2001

Marian E. Smith Faculty Achievement Award Finalist, 2000—one of the five best teachers selected at WSU.

The Outstanding Teaching Faculty, School of Mechanical and Materials Engineering, 1994.

The Outstanding Teaching Faculty, College of Engineering and Architecture, Washington State University, 1993.

The Outstanding Teaching Faculty, Department of Mechanical and Materials Engineering, Washington State University, 1993.

PUBLICATIONS

Refereed Journal Publications

Al-khedher M., Pezeshki C., McHale J., Knorr F., Bahr, D., J, Jiao, "Adaptive neuro-fuzzy modeling of mechanical behavior of vertically aligned carbon nanotube turfs using Raman spectroscopy and stereological measurements", submitted to *IEEE-Nanotechnology*.

Al-khedher M., Pezeshki C., McHale J., Knorr F., "Quality Classification via Raman Identification of Carbon Nanotube Bundles Using Artificial Neural Networks",

- Nanotechnology*, 18 (2007) 355703.
- Al-khedher M., Yassar R.S., Pezeshki C., Field D.P., "A novel structural-based approach in application of neural network modeling to predict the aging behavior of automotive alloys", *Model. Simul. Mater. Sci. Eng.*, 14 (2006), 905-921.
- Davis, W.O., Pezeshki, C., and Mosher, M., Extracting and Characterizing Blade-Vortex Interaction Noise with Wavelets, *Journal of the American Helicopter Society*, July, 1997.
- W. Constantine, C. Pezeshki, R. Bamberger and M. Mosher, Discrete Wavelet Analysis of Blade-Vortex Interaction, *J. of Acoustical Society of America*, July 1995.
- M.K. Khraisheh, C. Pezeshki, and A.E. Bayoumi, Time Series Based Analysis for Self-Excited Chatter in Metal Cutting, *Journal of Sound and Vibration*, 1995, Vol. 180(1), pp. 6787.
- Chandran, V., and Elgar, S. and Pezeshki, C., Bispectral and Trispectral Analysis of the Duffing Oscillator, *International Journal of Bifurcations and Chaos*, Vol. 3, Issue 3, 1993.
- Pezeshki, C., Miles, W.H., and Elgar, S., "Signal Processing Techniques for Structural Dynamic Systems," *ASME Applied Mechanics Reviews*, November, 1991.
- Miles, W.H., Pezeshki, C. and Elgar, S., "Bispectral Analysis of a Fluid Elastic System: The Cantilevered Pipe," *Journal of Fluids and Structures*, 1992, Vol. 6, 633-640.
- Pezeshki, C., Elgar, S., Krishna, R.C., and Burton, T.D., "Auto- and Cross-Bispectral Analysis of a System of Two Coupled Oscillators with Quadratic Nonlinearities Possessing Chaotic Motion," *ASME Journal of Applied Mechanics*, 1992, Vol. 59(3), 657-664.
- Pezeshki, C., Elgar, S. and Krishna, R.C., "An Examination of Multi-Frequency Excitation of the Buckled Beam", *Journal of Sound and Vibration*, 1991, Vol. 148(1), 1-9.
- Pezeshki, C., Elgar, S. and Krishna, R.C., "Bispectral Analysis of Systems Possessing Chaotic Motion," *Journal of Sound and Vibration*, 1990, Vol. 137(3), 357-368.
- Pezeshki, C., and Dowell, E.H., "A Multi-mode Analysis of the Buckled Beam Using Lyapunov Exponents", *International Journal of Nonlinear Mechanics*, Vol. 24 (2), 1989.
- Pezeshki, C. and Dowell, E.H., "On Chaos and Fractal Behavior in a Generalized Duffing's System", *Physica* **32D**, 1988.
- Dowell, E.H., and Pezeshki, C., "On Necessary and Sufficient Conditions for Chaos to Occur in Duffing's Equation: A Heuristic Approach", *Journal of Sound and Vibration*, 1988.
- Pezeshki, C., and Dowell, E.H., "An Examination of Initial Condition Maps for the Sinusoidally Excited Buckled Beam Modeled by Duffing's Equation", *Journal of Sound and Vibration*, Vol. 117(2), 1987.
- Dowell, E.H., and Pezeshki, C., "On the Understanding of Chaos in Duffing's Equation Including a Comparison with Experiment", *ASME Journal of Applied Mechanics*, **53**, March 1986.

Books

- Handbook of Sustainability, Invited Chapter on Ecodesign and Sustainability, Springer Verlag, NY, 2010.
- Material in Nonlinear Physics Oscillations, Chaos, Structures, Gaponov-Grekhov and Rabinovich, Springer-Verlag, NY.
- Material in Chaotic Oscillators- Theory and Applications, T. Kapitaniak, ed., World Scientific, NY.
- Pezeshki, C. Chandran, V., and Elgar, S., Using Higher-Order Spectra for the Analysis of

Deterministic Systems, Higher-Order statistical signal Processing, ed. Boashash, Powers and Zoubir, 1995.

Technical Presentations/Conference Papers

- Ameta, G., Panchal, J., and Pezeshki, C. “*A Collective-Learning Approach to Sustainable Design Education*”, Mudd Design Workshop VII, Sustaining Sustainable Design, 2009.
- Pezeshki, Charles, and Racicot, Kelley, “*Whither Worldwide Ecodesign and Sustainability Education? Examining Trends and Suggesting Solutions*” ASEE Global Colloquium, October, 2009, Budapest, Hungary.
- Racicot, K.A., and Pezeshki, C., “*Active Assessment in Capstone Design Using a System Approach*”, Proceedings of the 2007 ASEE Annual Meeting, June 2007, Honolulu, HI.
- Pezeshki, C., and Racicot, K.A., “*Everyday Project Management Products Archived as E-Portfolio: Evidence of Social Learning in an Engineering Design Curriculum*”, Proceedings of the 2007 ASEE Annual Meeting, June 2007, Honolulu, HI.
- M. Al-khedher, C. Pezeshki, J. McHale, D. Bahr, F. Knorr, “*Interpretation of Nanoindentation tests of Carbon Nanotube Bundles Using Neuro-Fuzzy Modeling*”, TMS Annual Meeting, Feb 25-Mar 1, 2007, Orlando, FL.
- M. Al-khedher, C. Pezeshki, J. McHale, F. Knorr, “*Raman Spectroscopy for Quality Assessment of Nanotube Bundles*”, MRS Fall Meeting, Nov 27-Dec 1, 2006, Boston, MA.
- M. Al-khedher, C. Pezeshki, J. McHale, “*Carbon Nanotubes (CNTs) Characterization and Quality Control*”, The 3rd International Congress of Nanotechnology, Oct 30-Nov 2, 2006, San Francisco, CA.
- Pezeshki, C., and Racicot, K.A., “*Introducing Students to the Global Engineering Workplace in a Capstone Design Class Using Project Mgmt. Software*”, ASEE Global Colloquium 2006, October, 2006, Rio de Janeiro, Brazil.
- Pezeshki, C. and Racicot, K.A., “*Improving Performance and Reducing Professor Workload in a Capstone Design Class Using Project Management Software*”, Proceedings of the 2006 ASEE Annual Meeting, June 2006, Chicago, IL.
- Racicot, K.A., and Pezeshki, “*Assessing Group Learning Using Wikis: an Application to Capstone Design*”, Proceedings of the 2006 ASEE Annual Meeting, June 2006, Chicago, IL.
- M. Al-khedher, R. S. Yassar, C. Pezeshki, D. P. Field, “*Nano-particle Structure-Property Characterizations of Aluminum Alloys*”, An Intentional Conference on Seeing at the NanoScale III, Aug 13-16, 2005, UCSB, Santa Barbara, CA.
- Waugh, B., Morell, L., Davis, I., Pezeshki, C., and Roberts, T. “*Citizen Engineers: Why and How We Engage City, State and Federal Governments on behalf of Engineering Education and Research*,” Proceedings of the 2005 American Society for Engineering Education Annual Conference & Exposition.

- Pezeshki, C., “*Managing a Capstone Design Clinic—Strategies for Pedagogic and Financial Success*”, Proceedings of the 2005 American Society for Engineering Education Annual Conference & Exposition.
- Pezeshki, C., “*Preparing Engineers for an Outsourced World—Strategies for Change*”, Proceedings of the 2005 American Society for Engineering Education Annual Conference & Exposition.
- Frame, T., Pezeshki, C., and Norton, M. “Integrating PLM Methods into the Undergraduate Curriculum”, Proceedings of the 2004 American Society for Engineering Education Annual Conference & Exposition.
- Humann, B., Pezeshki, C., and Norton M., “*Application of PLM to MEMS Devices in Education,*” Proceedings of the 2004 American Society for Engineering Education Annual Conference & Exposition.
- Pezeshki, C., Frame, T., and Humann, B. “*Preparing Undergraduate Mechanical Engineering Students for the Global marketplace – New Demands and Requirements*”, Proceedings of the 2004 American Society for Engineering Education Annual Conference & Exposition.
- Farris, C.A., C.H. Pezeshki, and L.F. Neuenschwander. (In Prep). A Comparison of Fire Probability Maps Derived GIS Modeling and Direct Simulation Techniques. International Journal of Wildland Fire.
- Farris, C.A., C. Pezeshki, and L.F. Neuenschwander. 1999. Grid-based Probability Models for Mapping Wildland Fire Risk. National Joint Fire Science Symposium, Boise, ID June 1999.
- Farris, C.A., C. Pezeshki, and L.F. Neuenschwander. 1999. Spatial Neighborhood Analysis for Wildland Fire Probability Maps Derived from GIS Index Models. In Weber, K.T. and S.H. Swetnam (eds.). Proceedings of the 1999 Intermountain GIS Users Conference. Pages 1-10.
- Davis, W., Pezeshki, C., Mosher, M., Detection & Characterization of Blade-Vortex Interaction Noise with Wavelets, presented at the 129th Meeting of the Acoustical Society of America, Washington, DC, May 30-June 2, 1995.
- Davis, W., Pezeshki, C., Mosher, M., Extracting Blade-Vortex Interaction Signals with Wavelet Analysis, presented at the American Helicopter Society 51st Annual Forum, Ft. Worth, TX, May 9-11, 1995.
- Lovato, J., Pezeshki, C. and Davis, W. “Application of the Volterra Functional Series Approach for Understanding Dynamic Systems”, 12th AIAA Applied Aerodynamics Conference, Colorado Springs, CO, 1994.
- Davis, Wyatt, Lovato, Julie, Pezeshki, Charles “Nonlinear Spectral Characterization of Frequency-modulated Control Applied to a Static Airfoil Shear Layer”, AIAA Fluid Dynamics Conference, 25th, Colorado Springs, CO, June 1994.
- W. Constantine, C. Pezeshki, and M. Mosher, Wavelet Analysis of Blade-Vortex Interaction Noise, Acoustical Society of America Annual Conference, May 1993, Ottawa, Canada.
- Athalye, A.M., Grantham, W.J., and Pezeshki, C., “Notch Feedback Control of a Duffing Oscillator,” 4th Workshop on Control Mechanics, Los Angeles, January, 1991.
- American Society of Engineering Education, 1991 Annual Conference, June 1991, Manufacturing Automation for Undergraduates.”
- Pan-American Conference on Applied Mechanics, January 1991, “Bispectral Analysis of the Buckled Beam Undergoing Multi-Frequency Excitation.”

American Physical Society, Fluid Mechanics Division, Nov. 1990 "Bispectra of Wall Turbulence Measurements," with M. Leibolt
Third Conference on Nonlinear Vibrations, Stability, and Dynamics of Structures and Mechanisms, June 1990, "Bispectral Analysis of Nonlinear Oscillators."
AIAA SDM Conference, April 1990, "Auto- and Cross-Bispectral Analysis of Coupled Nonlinear Oscillators."
21st Midwestern Mechanics Conference, August 1989, "Bispectral Analysis of the Rossler Equations."
ARO/AFOSR Workshop on Dynamics, March 1987, "Topics on the Chaotic Dynamics of the Buckled Beam."
Army Research Office Spring Meeting, May 1986, "Initial Condition Maps for Duffing's Equation."
ASME Annual Winter Meeting, November 1985, "On the Understanding of Chaos in Duffing's Equation."

Invited Presentations

Workshop – ASEE Global Colloquium, 2009, Budapest, Hungary – Ecodesign and Sustainability Education
Workshop – ASEE Global Colloquium, 2008, Cape Town, South Africa – Ecodesign and Sustainability Education
Plenary Lecture—International Mechanics Conference, Universidad Autonoma de Queretaro, "The Education of the Global Engineer (or how to gain the advantage on global competition through unique collaborations)," Queretaro, MX, May 2007.
4th ASEE/AaeE Global Colloquium on Engineering Education 2005, "Preparing Engineers for an Outsourced World—Strategies for Change."
NSF Grantees Conference, Poster Session, 2003, "Application of PLM to MEMS Devices in Education."
Third Symposium on Signal Processing and Its Applications, August 1992, "On Applications of Higher Order Spectra to Chaotic Systems."

Classes Taught

Course Numbers: ME313 (Engineering Analysis), ME212 (Dynamics), ME316 (Introduction to Design), ME401 (Mechatronics), ME416 (Senior Capstone Design), ME575 (Advanced Manufacturing Techniques), ME475 (Manufacturing Automation), ME580 (Nonlinear Dynamics), ME120, (Introduction to Engineering), ME473 (Computer-Aided Design)

All classes with number designation 500+ are graduate courses.

Advanced Vibration Analysis

Text: L. Meirovitch, Elements of Vibration Analysis, McGraw-Hill.

Engineering Analysis

Text: James, Smith Wolford, Applied Numerical Methods for Digital Computation,

Harper and Row.
Manufacturing Automation
Text: M. Groover, Automation, Production Systems, and Computer Integrated Manufacturing, Prentice-Hall.
Computer Aided Design
Text: D.F. Rogers and J.A. Adams, Mathematical Elements for Computers, McGraw-Hill.
Nonlinear Dynamics
Text: J.M.T. Thompson and H.B. Stewart, Nonlinear Dynamics and Chaos, Wiley.
ME 416 Senior Capstone Design
No Text; emphasis on Industrial Projects.
ME 316 Systems Design
Text: SQC for Manufacturing Managers-Media, The Successful Engineer-J. Campbell Martin, the Deming Management Method - Mary Walton, Ulrich and Eppinger, Product Design and Development

Classes Developed and/or Major Revisions Made

ME401 – Mechatronics (developed)
ME416 – Implemented current Industrial Design Clinic strategy
ME316 – Implemented current design strategy into the class. Also responsible for revisions removing probability and statistics from the class
ME475 – Implemented data acquisition and control techniques into class curriculum

Professional Societies

American Society of Engineering Education
American Society of Mechanical Engineers

University Service

Undergraduate Studies Committee -- over 10 years of service
MME Computer Committee – 2 years
MME Senator, WSU Faculty Senate – 5 years
Chair, WSU Faculty Senate – 2 years
Chair- Elect, WSU Faculty Senate— 1 year
Advisor of many student clubs, including Society of Hispanic Professional Engineers (3 years)
WSU Robotics (2 years), Hybrid Electric Vehicle (2 years), Human-Powered Vehicle (4 years)
Co-founder and ME Representative, College Engineering Entrepreneurship Center
Participant and Presenter, WSU Critical Thinking Project

Outside Service

2001-Present Contract Photographer for the Heritage Forests Campaign, the D.C. based campaign responsible for the enactment of the Clinton Roadless Initiative, and the

defense of the Initiative from attacks by the Bush Administration.

- 2005-2007 President and Vice President, Jefferson Elementary School Parent-Teachers Association. Responsible for major construction initiative that resulted in a Wallball Court being built for the elementary school students.
- 2002-2003 Field strategist/ political consultant for the Pew Charitable Trusts against the Bush Administration “Healthy Forests Act.” Submitted photos that resulted in modification of the Act, that were viewed throughout the U.S. Senate.
- 2001-2002 Campaign Organizer for the Pew Charitable Trusts’ Northern Rockies Forest Protection Campaign in defense of the Roadless Rule—budget of \$100K. Campaign participants won major lawsuits establishing precedent-setting judicial decisions regarding interpretation of wildlife, forest and environmental law.
- 2000-2002 Director/Funding Agent for the Pew Charitable Trusts’ campaign for defending the Bitterroot National Forest from environmentally destructive post-fire salvage logging. Forced the Forest Service into a reduction in the size of the sale by 80%. Budget of \$25K.
- 1998-2001 Conceived and started a campaign for designation of the Clearwater/Great Burn Country as the Lewis and Clark National Historic Monument and Preserve. Developed a brochure with help of a Y2Y mini-grant, and submitted a formal proposal to President Clinton.
- 1999-Present Started a stock agency for environmental issue photography associated with Idaho roadless areas. Shot photos, wrote grants for equipment (\$9000 in two grants from the Norcross Wildlife Foundation), distributed photos and received payment on a sliding scale to environmental organizations, from local to national. Clients include many Y2Y network member groups, Y2Y itself, national Sierra Club, New York Times, Idaho Conservation League, Native Forest Network, American Wildlands, Alliance for the Wild Rockies, and many more. Currently working on a second book of photos of threatened Idaho wildlands. Recipient of an Idaho Commission on the Arts grant for same. Developed a website for photo dissemination: <http://www.wildcountry.info>
- 1997-2000 Nominated the Clearwater River as an American Heritage River. Prepared the nomination packet and assisted with media.
- 1996-Present Founding member of the Wild Clearwater Coalition. Coordinated and developed cutting-edge legal strategy on water quality and old-growth issues. Helped gather professional witnesses, performed field work and prepared courtroom exhibits.
- 1997-1998 Sabbatical in the College of Forest, Wildlife and Range Sciences at the University of Idaho, working with Leon Neuenschwander, Professor and nationally recognized expert on fire cycles in the ponderosa pine ecosystem, and Calvin Farris, graduate student. Published three conference papers on landscape-level probabilistic methods for assessing

wildland fire risk. Work included FARSITE fire modelling and coordination of GIS work.

1996-2003 Worked with Nez Perce Office of Legal Counsel in crafting strategy on forest and wild fish issues in the Clearwater river sub-basin.

1994-1998 Authored Wild to the Last: Environmental Conflict in the Clearwater Country (WSU Press, 1998). The popularly-written text received critical acclaim in such diverse publications as *Sierra Magazine*, *The Bloomsbury Review*, and *Orion Afield*. Consisting of three collections of essays on place, people involved with activism in the Clearwater Country, and environmental battles fought, the book established an original environmental literature for the Clearwater Country. The book was read by high-level decision-makers, including Vice President Al Gore and Washington State Governor Gary Locke

1994-Present Contributor to a variety of environmental publications, including *The Earth First! Journal*, *High Country News*, *The Forest Voice*, and others. Also a contributor to *Writers on the Range*, *High Country News*' wire service for environmental issues. Wrote the endorsed op-ed piece for the *Denver Post* on wildland fire after the 2000 fire season.

1993- Present Founded and directed the Clearwater Biodiversity Project (CBP). CBP has been involved, initiated, and directed numerous forest protection campaigns, involving all aspects of public outreach, education, coalition-building and litigation. Examples include everything from art education outreach at local public schools to media tours around the issue of state takeover of public lands, to the media campaign around the landslide and flooding events of the winter of 1995-96, which led to the roadbuilding moratorium on the National Forests in 1998. CBP and its partners have established and maintained the cutting edge in many technical aspects of forest activism—in particular water quality and landslide issues, as well as application of state-of-the-art media techniques. Co- petitioned (with American Wildlands) for listing of westslope cutthroat trout under the Endangered Species Act. Developed a timber sale monitoring program for post-sale review. Hosted and mentored numerous interns. Helped with logistics for numerous civil disobedience campaigns, including the Cove/Mallard Campaign. Served as a group mediator for a variety of disputes, and facilitated coalition building among environmental groups with widely divergent viewpoints.

1992-Present Served on numerous environmental organization boards, including Clearwater Forest Watch Coalition, Idaho Rivers United, the Idaho Sporting Congress, Western Land Exchange Project, Friends of the Clearwater, and the Ecology Center.

1992-1996 Volunteer salmon and wild fish advocate. An original Snake River dam breach advocate, and responsible for mainstreaming Reed Burkholder's seminal economic work on removal of the dams into a pro-breach position in the Idaho environmental community.

Service Grants:

Y2Y Network—three mini-grants for the Lewis and Clark Monument and photography.

Norcross Wildlife Foundation—two grants totalling \$9000 for photo equipment

Other various mini-grants for selected activities and interns.

Pew Charitable Trusts -- \$25K for Bitterroot Defense work

Pew Charitable Trusts -- \$100K for Northern Rockies Forest Defense work

Journal Reviewer

Journal of Sound and Vibration

Physics Letters

Nonlinear Dynamics

ASME Journal of Vibration and Acoustics

Professional Societies

American Society of Engineering Education – 2003-Present

American Society of Mechanical Engineers – 2006-Present

Students Supervised

2005 Mohammad Alkheder—Ph.D. Degree

2004 Brian Humann – MS Degree

2004 Travis Frame – MS Degree

1996 W.O. Davis - MS Degree

1993 W.L.B. Constantine - MS Degree

1992 M.K. Khraisheh - MS Degree

1991 W.H. Miles - MS Degree