

Bill Hess

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SUMMARY OF QUALIFICATIONS

- Successful background in engineering, product design and development, research, and teaching
- Plastics, glass, and metals design experience for consumer and medical products from concept through production (prototyping, short manufacturing runs, and production troubleshooting)
- Skilled with a variety of software: CAD, graphics, word processing, and data analysis
- Able to manage and supervise student research and development projects
- Exceptional creative problem solving abilities from a broad-based perspective in design and engineering
- Knowledge and expertise in sustainable design and green engineering
- Strong oral and written communicator; sensitive listener and enthusiastic team player

EMPLOYMENT EXPERIENCE

- Ideas On Legs**, Afton, Virginia Sept, 2003- present
Seattle, Washington Sept, 1999- Aug, 2003
Chicago, Illinois Sept, 1998- Aug, 1999
Owner/ Principal. Self-employed designer and engineering consultant offering a broad based perspective for services in research and development, product design, project planning, experimental design, coordination with internal staff functions, and creative problem solving.
- South Seattle Community College**, Seattle, WA June, 2001- June, 2003
Instructor, part-time, Academic Programs. Taught Physics, Chemistry, Engineering Creativity and Problem Solving. Developed new "Introduction to Engineering" class using college grant award.
- Baxter Healthcare Corporation**, Round Lake, IL July, 1997- Sept, 1998
Principal Engineer. Provided product design and development services to the multiple divisions of a large international (Fortune 500) medical company as an employee in the Advanced Engineering Design Center. Received Design patent.
- Herbst Lazar Bell Inc.**, Chicago, IL June, 1995- June, 1997
Mechanical Design Engineer. Consultant in an internationally recognized firm for product design and development. Worked with companies in consumer, medical, and dental fields. Won awards for product design work. Received design and utility patents.
- Rehabilitation Institute of Chicago**, Chicago, IL June, 1994- March, 1995
Research Assistant. Completed thesis research for Master's degree in biomedical engineering under Scott L. Delp, Ph.D. Analyzed physiologic data to more accurately model normal human leg movement. Results were published in *Journal of Biomechanics* and presented at the *American Society for Biomechanics*.
- Thayer School of Engineering, Dartmouth College**, Hanover, NH Sept, 1993- June, 1994
Research Assistant. Designed and developed instrumentation for experimental knee surgery. Results were presented at the *Southern Biomedical Engineering Conference*.
- The Johns Hopkins University**, Baltimore, MD Sept, 1990- Aug, 1992
Technician. Worked with product engineers and surgeons to research and test artificial knee and hip joints using cadaver specimens. Completed experiments to further quantify the biomechanics of human hip muscles; results were published at *The Orthopedic Research Society* and became the basis for a master's thesis at Northwestern University.

DESIGN AWARDS AND GRANTS

ACCT bike rack commission, Charlottesville, Virginia, 2007
Curriculum Development Grant, South Seattle Community College, 2002-03
Public Art Assistantship, King County Public Art Program, Seattle, Washington, 2002-03
Medical Design Excellence Award- 1998
Industrial Design Excellence Award (IDEA) from Industrial Design Society of America (IDSA), 1998
Industrial Design Excellence Award given by IDSA, 1997
Marcus Heiman Award for proficiency in art and design, Dartmouth College, 1990
Richter Grant Award for funding senior thesis in sculpture, Dartmouth College, 1990
Clorox/ Bay Area Grant for funding architecture internship in San Francisco, California, 1989
Waterhouse (Xerox) Grant for independent art project, Dartmouth College, 1988

PATENTS

#USD0424692. Monaghan, M., Stewart, J., Stonis, T., Hawes, R., Hess, B., Belton, A. "Syringe holder", 2000.
#USD0394902. Herbst, W.B., Demar, D.A., Hess, W.E. "Dental Handle", 1998.
#US5816806. Herbst, W.B., Demar, D.A., Hess, W.E. "Dental instruments with large molded handles", 1998.

PRODUCT DESIGN AND RESEARCH- project details provided upon request

Biodegradable packaging: research and develop applications for medical and consumer products
Tiles and sculpture from recycled bottle glass: discarded glass is transformed into products and art
"GreenLinks": snap together tiles for kids made out of recycled plastic
"The Waste Game": environmental board game that teaches waste reduction
"The Recycle Sack": lunch sack game that teaches waste reduction
Leak-Proof Travel Mug: plastic mug with high performance seal to prevent spills
Personal Data Assistant: small hand held computer housing design
Disposable Flow Control System: patient controlled dialysis valve
Packaging for Blood Collection Set: tray for shipping and hanging blood transfusion bags
Stabilizing Instrument for Heart Surgery: adjustable positioning instrument for open-heart surgery
Syringe Holder Accessory for Fluid Pump: detachable multi-function syringe holder for I.V. pump
Blood Separation Chamber: disposable for separating blood cells and plasma from whole blood
Plasma Spinner: disposable for separating red blood cells and plasma from whole blood
Pathogen Inactivation Delivery System: disposable plastic concepts for treating contaminated blood
Dental Injection Pump: machine for automated injection of dental anesthetic
Vacuum Cleaner Floor Care System: redesign of vacuum cleaner
Laboratory Specimen Testing Plate: high performance disposable for laboratory specimen processing
Inventory Control System: medication package dispenser for medical office
Reusable Plastic Dental Instrument: development of ergonomic handle using high temperature plastics
Snowboard Binding: mechanism development for attaching boot to snowboard
Home Ice Cream Maker: home appliance incorporating alternate cooling technology
Garage Storage System: mechanism design for overhead accessible storage
Deodorant Dispenser: shape study of consumer product for market research
Master of Science Thesis Research: experimental and computer analysis of hip muscle function
Bachelor of Engineering Project: surgical instrumentation design and testing for artificial knee implants
Orthopedic Research: various experiments run to analyze kinematics and dynamics of human joints

BIOMEDICAL RESEARCH PUBLICATIONS AND PRESENTATIONS

S.L. Delp, W.E. Hess, D.S. Hungerford, L.C. Jones, 1999. "Variation of Rotation Moment Arms with Hip Flexion," *Journal of Biomechanics* 32, 493-501.

Hess, W E. and Delp, S. L. "Variation of Hip Rotation Moment Arms with Hip Flexion," *Proceedings of the 19th Annual Meeting of the American Society of Biomechanics*. This work was presented as the 19th annual meeting of the American Society of Biomechanics, August, 1995, Stanford, California.

Hess, W.E. *Variation of Rotation Moment with Hip Flexion*. M.S. Thesis. Northwestern University, Evanston, 1995.

Hess, W.E., Collier, J.P., Pieper, S.D., Robbie, P., Mayor, M. "Procedure Development and Hardware Design for Minimally Invasive Knee Replacement Surgery," *Biomedical Engineering Recent Developments*. This work was presented at the Southern Biomedical Engineering Conference, April, 1994, Washington, D.C.

Hess, W.E. *Procedure Development and Hardware Design for Minimally Invasive Knee Replacement Surgery*. Bachelor of Engineering Project. Thayer School of Engineering, Dartmouth College, Hanover, 1993.

Hess, W.E., Banes, D.P., Jones, L.C., Hungerford, D.S. "Off-Axis Load to the Proximal Femur May Be Resisted by the Hip Rotators," *Proceedings of the 38th Annual Meeting, Orthopaedic Research Society*. This work was presented at the 38th annual meeting of the Orthopaedic Research Society, February, 1992, Washington, D.C.

CURRENT AFFILIATIONS

Member, Rockfish Valley Community Center
Member and Certified Business, Green America (formerly Co-Op America)

PAST AFFILIATIONS

Member, Glass Art Society
Project Advisor, Capstone Program, *University of Virginia*
Member, Virginia Piedmont Technology Council
Member, *Independent Inventors Association*, Charlottesville, Virginia
Secretary for Board of Trustees, *The Nature Consortium*, Seattle, Washington
Associate member, *American Society for Mechanical Engineers (ASME)*
Member, *Art and Science Collaborations Incorporated (ASCI)*
Northwest Product Stewardship Council, Seattle, Washington
Member, *Pratt Fine Arts Center*, Seattle, Washington
Member, *Friends of Artist Trust*, Seattle, Washington

INVITED LECTURES

Charlottesville Community Design Center: Products and Art with Recycled Bottle Glass, Sept, 2006
University of Virginia Department of Biomedical Engineering: Sustainable Design and Engineering, Feb, 2007

EDUCATION

Northwestern University, Chicago, IL June, 1995
Master of Science in Biomedical Engineering, concentration in biomechanics
Thesis: "Variation of Rotation Moment Arms with Hip Flexion"

Thayer School of Engineering, Dartmouth College, Hanover, NH June, 1993
Bachelor of Engineering, concentration in mechanics
Design Project: "Procedure Development and Hardware Design for Minimally Invasive Knee Surgery"

Dartmouth College, Hanover, NH June, 1990
Bachelor of Arts, double major: Engineering Sciences and Studio Art (honors)
Honors thesis in sculpture: welded steel and cast bronze

OTHER ACTIVITIES

Accomplished designer and sculptor in glass and metal, yoga, running, hiking, biking