

William (Bill) Dresselhaus, Dr.-Ing.

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OVERVIEW

Bill Dresselhaus is currently President/CEO of Dresselhaus Group, Inc., a product design and design education consultancy. He is an Adjunct Assistant Professor in the Engineering and Technology Management (ETM) Department in the Maseeh College of Engineering and Computer Science (MCECS) at Portland State University (PSU) in Portland, Oregon USA. Bill is also an Instructor at Portland Community College in Product Design & Development Fundamentals. From September 2009 to August 2016, Bill was Joint Invited Professor of Product Design and Design Management at the International Design school for Advanced Studies (IDAS) and the Mechanical and Systems Engineering Design (MSDE) Department at Hongik University in Seoul, South Korea. In all of these teaching venues, he developed multiple courses and instructed non-design, design, and engineering undergraduate and graduate students in the principles and processes of product design, design thinking, and design management.

Bill was one of the early product designers in Silicon Valley, California, in the 1970s and 1980s. He was the second Product Designer at Apple Computer and later Manager of Product Design of the Apple Lisa Division. He was the Principal Product Designer of the Apple Lisa computer, the forerunner of the Macintosh and "Mother of the Mac", where he managed the product design and industrial design of the Apple Lisa and the industrial design of its mouse. Bill was Manager of Product Design and later Acting Director of Opto-Mechanical Design at InFocus Systems in Oregon and led product design teams there for three of its first market-leading digital media projector systems. He has worked with, for, managed, and/or hired some of the best designers and design firms in the world: IDEO, Ziba, Frog, RKS, Lunar, Matrix, and Stratos. His product design clients include Apple Computer, InFocus, Hewlett-Packard, LG Chemical, Sun Microsystems, TransFresh, and many other global high-technology companies, in addition to a number of international universities for educational design programs.

Bill has recently been awarded his doctorate in engineering through Wuppertal University Mechanical and Safety Engineering in Germany. His dissertation project concerns developing a method for geometric product form design for high technology product development. He is dedicated to design education and helping anyone to understand, learn, and practice the principles and processes of design thinking and product design. Bill also has two masters degrees in engineering and product design from Iowa State and Stanford University respectively and Executive Industrial Design Program training at Art Center College of Design in California. He currently consults and teaches internationally for a variety of organizations and produces design thinking and product design education materials online. Bill has a special interest and competency in teaching comprehensive product design remotely online so as to reach as many global students as possible with his passion for product design.

Core Background

- Dr.-Ing. (Doctor of Engineering), *magna cum laude*, from Wuppertal University, Germany.
- BS/MS in chemical engineering (Nebraska and Iowa State Universities respectively).
- MS in product design (Stanford University).
- Executive Graduate Studies in Industrial Design (Art Center College of Design).
- Eclectic broad experience in product design, engineering, management, and teaching.
- Chemical process engineer, product designer, mechanical designer, project/departement manager, industrial designer, professor, publisher, graphic designer, biochemical technician, machinist, and model-maker.
- Principal Product Designer (Lisa) and Product Design Manager at Apple Computer.
- Director of Lunar Design, Portland Office.
- Lead Product Designer and Product Design Manager/Director at InFocus Systems.
- CEO/President of Dresselhaus Group, Inc.
- 8.5 years as full-time product design and design management professor (South Korea).
- 10 years as part-time design, management, and STEAM instructor.
- Articles, workshops, seminars, lectures, and papers on design and management.
- Listed as inventor on four US patents (Apple-2x, InFocus, and TransFresh).
- Doctoral thesis in product design engineering via Wuppertal University, Germany.

Core Interests and Capabilities

- Designing innovative, beautiful, and sustainable high-technology physical products.
- Teaching product design, design thinking, and design management.
- Design execution, visualization, simulation, presentation, and communication.
- Developing educational content, courseware, and media for design education.
- Designing, building, repairing, learning, and playing electric guitars.
- Studying Christian apologetics, Intelligent Design, and Christian theology.

PROFESSIONAL WORK EXPERIENCE

President and CEO, Dresselhaus Group, Inc. (DGI): Offered product design strategies, solutions, management, development, consulting, and execution. Currently offers education and training internationally to companies and organizations specializing in industrial design, product design and engineering, design management, innovation facilitation, and design thinking education and training. Creates writing, research, development, design, and publishing of books, manuals, training, materials, media, workshops/seminars on innovation, design thinking, and product development internationally. SF Bay Area, Irvine CA, South Korea, and Portland OR; 1998-present.

Product Design and Industrial Design Manager/Director, InFocus Corporation: Designed with and managed world-class team of designers, engineers, and design outsources to facilitate cross-functional, multi-million dollar projects of high-technology, award-winning, and highly profitable best-in-class data/video projection systems. Acting Opto-Mechanical Design Director, Product Design Group Manager, Lead Product Designer, and Project

Manager. Responsible for oversight of Design Documentation, Model Shops, and MCADD Administration. Listed on one digital projector patent and two design awards. Wilsonville, Oregon USA; 1994-1998.

Director, Lunar Design, Inc., Portland Office: Managed division of award-winning Lunar Design, a full-service, comprehensive industrial design and product development consultancy, headquartered in Palo Alto, California. Developed and managed numerous high-technology and consumer product design projects, including an Apple Computer laptop. Portland, Oregon USA; 1991-1992.

Bill Dresselhaus Product Design and Dresselhaus Design Group: Left Apple Computer in late 1983 and started small product design and engineering consultancy in Silicon Valley—Apple, IDEO, and Lunar Design were primary clients. Evolved into a larger studio with more clients and extensive design projects. During these years did stints in corporate design management at InFocus and Lunar Design. Redwood City, California, and Portland, Oregon USA; 1984-1998.

Apple Product Design Consultant: After leaving Apple, was design consultant to the Apple Product Design Group for about ten years thereafter on miscellaneous projects such as the Apple IIe, IIc, IIGS, and several desktop computers and PowerBook laptops, plus the secret Water Project. Silicon Valley, California USA; 1984-1993.

Manager of Product Design, Lisa Division, Apple Computer: One of the first in-house industrial designers/product designers at Apple Computer (Employee #316), at times working directly with Steve Jobs, Apple's cofounder. Executed and managed industrial design, product design, and mechanical design for numerous early Apple products. As Principal Product Designer designed and managed the product design for the Lisa Computer, the forerunner of the Macintosh and "Mother of the Mac". Designed parts and components for the Apple II and Apple III computers. Cupertino, California USA; 1979-1983.

Product Design Engineer, Hewlett-Packard Corporation, Data Terminals Division: Product designer and mechanical designer on the development team for a sophisticated new thermal printer project at this progressive H-P division prior to being hired at Apple Computer. Cupertino, California USA; 1978.

Design Director and Account Executive, Peter Lowe and Associates: Executed, directed, and managed a variety of industrial design and mechanical design projects for this prominent Silicon Valley design consultancy that developed work for consumer product and technology companies. Palo Alto, California USA; 1977.

Product Design Contractor, Clement Laboratories: Worked as an on-site contract product designer and industrial designer on numerous technology products from medical and laboratory devices to computer systems and peripherals for this well-known pioneering Silicon Valley design consulting firm. Mountain View, California USA; 1976.

Free-lance Product Designer: Provided a variety of design services to local Silicon Valley industries, including product design, mechanical design, industrial design, graphic design, and model making. San Francisco Bay Area USA; 1975.

Design Model Maker, Scale Models Unlimited: Part-time design and development product model maker while attending Stanford University Masters Program in Product Design. Menlo Park, California USA; summer, 1974.

Production Machinist, Jerry Carroll Machining: Part-time production machinist while attending Stanford University Masters Program in Product Design. Menlo Park, California USA; 1973.

Process Design Engineer, Fluor Corporation, Development and Design Divisions: Worked on a variety of chemical engineering design projects from process concept designs and analyses to petroleum refinery process design. Los Angeles, California USA; 1969-1970.

Process Design Engineer Trainee, Monsanto Company: Chemical engineering design trainee working on methanol, steam plant, and refinery designs, analyses, and computations. St. Louis, Missouri USA; summer (while attending Iowa State University graduate school of chemical engineering), 1967.

Laboratory Research Assistant, University of Nebraska and Penn State University, Biochemistry Departments: Assisted professors in biochemical laboratory research and analysis. Assisted with published papers on saccharides analysis via paper chromatography with Dr. John Pazur. Lincoln, Nebraska and College Station, Pennsylvania USA; summers of 1965 and 1966 (while a chemical engineering undergraduate and graduate student).

TEACHING EXPERIENCE

Adjunct Assistant Professor, Department of Engineering and Technology Management (ETM), Maseeh College of Engineering and Computer Science (MCECS), Portland State University (PSU): Teaching Introduction to Product Design and User-Centered Innovation undergraduate and graduate courses respectively. Portland, Oregon USA; September, 2016-present.

Instructor, CADD Program, Portland Community College (PCC): Teaching a course in Product Design & Development Fundamentals. Portland, Oregon USA; Spring 2022.

Developer and Provider of Design Thinking Instructional Content for International Design and Engineering Education Association (IDEEA): Developed and provided online design thinking and project development instructional content, media, mentoring, judging, and website for international design collaborative of global universities. Portland, Oregon USA; 2019-2022.

Developer and Provider of Design Thinking Instructional Content for Portland State InventORegon Collegiate Challenge: Develop and provide online design thinking instructional content for statewide entrepreneurial competition. Portland, Oregon USA; 2017-2018.

Joint Invited Professor of Product Design, Mechanical Engineering, Design Management, and Intellectual Property, Hongik University, Seoul, South Korea: Taught product design,

design management, creative design engineering, design and innovation, and related courses to cross-functional graduate students at Hongik's International Design school for Advanced Studies (IDAS), to engineering design students at the Hongik University Department of Mechanical and Systems Design Engineering (MSDE), and design, innovation and design management to Korean law professionals in the Hongik Law School Master of Intellectual Property (MIP) program. Worked with MSDE design education leadership to develop appropriate courses and curricula for product design and development, design thinking, and design management, ultimately culminating in the unique HIU Designer Program. Seoul, South Korea; September, 2009-August, 2016.

Adjunct Faculty, Department of Technology and Society, State University of New York in Korea (SUNY Korea), College of Engineering and Applied Sciences: Taught Project Management to freshmen undergraduates and Design Thinking & Process for Managers for Korean POSCO management program for industry professionals. Seoul, South Korea; 2013-2014.

Professor of Product Design and Design Management, Hongik University, Seoul, Korea: Taught product design, design management, design engineering, presentation skills, and related courses to cross-functional graduate students at Hongik's International Design school for Advanced Studies (IDAS). Taught design thinking and innovation process to engineering design students in mechanical engineering. Seoul, South Korea; March, 2008-August, 2009.

Extension Instructor, Continuing Education School, University of California, Irvine: Taught various seminars on innovation, marketing, creativity, education, and design to international professionals and educators from Brazil, South Korea, and USA. Irvine, California USA; 2003-2006.

Adjunct Faculty, W. Averell Harriman School for Management and Policy at the State University of New York at Stony Brook, College of Engineering and Applied Sciences: Taught Marketing of High Technology Products and Technology Management Issues for Innovation for SUNY Korean MSTM program for industry professionals. Seoul, South Korea; 2002-2004.

Visiting Professor, Institute for Industrial Policy Studies (IPS) and aSSIST MSTM Program: Taught International Design Business Management and Marketing of Technology Based Products to Korean industry professionals for IPS joint Helsinki School of Economics EMBA program and SUNY MSTM graduate program. Seoul, South Korea; 2002-2004.

Adjunct Faculty, Management in Science and Technology, Oregon Graduate Institute of Science and Engineering: Taught industrial design and product development management for courses in pilot STEEP Project for international Asian professionals and educators for three delegations from China. Beaverton, Oregon USA; 1998-2003.

Adjunct Faculty, Physical Science, Cascade College: Taught undergraduate Physical Science course. Portland, Oregon USA; 1997.

Visiting Professor of Industrial Design, Induk Institute of Design (IID): Taught industrial design and product design and development at South Korean design college through grant

support from U.S. State Department (USAID). Helped start IID Industrial Design Program, one of earliest in Korea. Seoul, South Korea; 1974-1975.

Teaching Assistant, Product Design, Design Division, Stanford University: Design course graduate teaching assistant and product design model shop manager in Stanford University Product Design Program. Palo Alto, California USA; 1972-1974.

Chemistry Instructor, Pepperdine University, Department of Chemistry: Instructor in General Chemistry teaching undergraduate chemistry and labs. Los Angeles, California USA; 1971.

Teaching Assistant, Iowa State University, Mathematics Department: Graduate Teaching Assistant in mathematics courses. Ames, Iowa USA; 1968.

UNIVERSITY LEVEL DESIGN COURSES DEVELOPED AND TAUGHT

- Introduction to Creative Engineering Design
- Basic Product Design & Development
- Design Visualization & Simulation Methods
- Green Product Design & Development
- Interdisciplinary New Product Innovation
- Presentation Skills for Design & Management
- Introduction to Human-Centered Design
- Introduction to Product Design
- Form & Esthetics for Engineering Design
- Product Concept Design & Development
- Integrated Design Planning & Development
- Design & Innovation for Intellectual Property
- Design Management for Intellectual Property
- Advanced Engineering Design Studio
- Product Service System Design for Engineering
- Advanced Product Design Studio
- Design & Innovation for PhDs
- Teaching Innovation & Creativity in Engineering
- Convergence Design & Development Process
- Design Thinking & Innovation for Managers
- Design Sketching, Rendering & Visualization
- STEM Overview for Intellectual Property
- Marketing of Technology Based Products
- Design Theory, Philosophy & Culture
- User Centered Innovation
- Design Practice & Professional Process

EDUCATION AND TRAINING

- Doctorate (Dr.-Ing.) in engineering, Wuppertal University, Germany. 2022.

- Executive Graduate Studies in Industrial Design, Art Center College of Design. 1998.
- Master of Science in Product Design, Stanford University. 1974.
- Master of Science in Chemical Engineering, Iowa State University. 1969.
- Bachelor of Science in Chemical Engineering, University of Nebraska. 1967.
- Miscellaneous post-graduate courses in art, industrial design, model making, industrial technology, manufacturing methods, project management, CADD technology, materials and processes, design techniques and methodologies, and design visualization from various educational venues.
- Capable at various levels in the following digital tools (Macintosh only): Autodesk Fusion 360 CAD modeling; Adobe Illustrator, Acrobat, and Photoshop; Apple Photos, Keynote, Pages, Numbers, iBooks Author, GarageBand, and iMovie.
- Capabilities in manual 2D sketching and making mockups, models and prototypes.

PUBLICATIONS

- Author and creator of *A Geometric Design Language and Method of Creating Aesthetic Product Form for Engineering Design*, a thesis submitted for the degree of Dr.-Ing. (Doctor of Engineering) from Wuppertal University, Wuppertal, Germany. 2022.
- Author, designer, and publisher of *Apple's Lisa: A Product Design Story*, an Apple iBook of early Apple product design history and product design process based on Bill's experience as the Principal Product Designer of the Apple Lisa computer, the forerunner of the Macintosh. This iBook was released in September of 2017 on the Apple iBooks Store and contains some information and images that few have previously seen. It is meant to be both a design history book as well as an educational treatment of the product design process that has changed little since the days of Lisa.
- Co-author of published academic paper, *Improved Methods for Teaching Product Form Design to Engineering Students*, by William F. Dresselhaus, Hyunjune Yim, and Keun Lee. Bill presented this paper in September 2018 at the International Conference on Engineering and Product Design Education (E&PDE), Dyson School of Design Engineering, Imperial College, London, United Kingdom.
- Author, designer and publisher of *ROI: Return On Innovation™*, a design management book on innovation in product design and development. *ROI* has been a design textbook at several colleges and universities in the US and Asia and was published in original print form in 2000. *ROI: Return On Innovation™* has been revised, reorganized, and republished as an Apple® iBook®, and available at the Apple iBook Store or through the website, www.roibook.com.
- The first English *ROI* book print version above was translated into a Korean language version entitled, *ROI: Design Innovation 1.0®*, Volume 1, and published in Korea in 2004 by Ahn Graphics, and sold in bookstores in Seoul, South Korea.

- Bill and his team created an interactive Apple® iBook®, *Design Right by Autodesk®*, about teaching the fundamentals of basic engineering statics and using the revolutionary Autodesk App, ForceEffect®.
- Bill has written or been featured in a number of journal and magazine articles on design, product development, innovation, design management, and design education in such international publications such as *ID Magazine* (USA), *Machine Design Magazine* (USA), *Innovation Magazine* (IDSA), *The Journal of Creative Management* (South Korea), *E&PDE2018 Conference* (London), and *G-Colon Magazine* (South Korea).
- Bill is featured or mentioned as a key early product design innovator and leader at Apple Computer in several books about Apple and/or Steve Jobs—*AppleDesign: The Work of the Apple Industrial Design Group* by Paul Kunkel, *The Apple Revolution: Steve Jobs, the Counter-Culture, and How the Crazy Ones Took Over the World* by Luke Dormehl, *Design Like Apple* by John Edson, and *Make It New* by Barry Katz.

EXHIBITIONS

During the summer of 2017, Bill's work for Apple and other high-technology companies (including the Apple Lisa project), was exhibited at the Dongdaemun Design Plaza exhibit hall in Seoul, South Korea, where thousands of visitors viewed it.

SPEAKING/LECTURE/SEMINAR/PRESENTATION/WORKSHOP ENGAGEMENTS

Bill has given lectures, speeches, seminars, and workshops on design, innovation, education, and management at numerous international venues:

- *ROI* book tour for SDRC/H-P (8 cities in USA + 11 cities in Asia for 20+ seminars)
- Center for Design & Business (USA/RISD; keynote)
- University of California at Irvine (USA; 4X; seminars/workshops)
- Institute for Software Research (USA; keynote)
- Institute for Industrial Policy Studies (Seoul; 4X; seminars/courses)
- University of Pennsylvania, Wharton Business School (USA; lecture/interview)
- University of California, Los Angeles (USA; panel)
- Parametric Technologies Corporation (PTC; USA; webcast)
- Korea Institute of Design Promotion (KIDP; Seoul/USA; 5X; design workshops)
- Seoul Design Olympiad (SDO; speech)
- Seoul Design Center (SDC; speech)
- IDSA Design Conference (USA; 2X; presentations)
- IDSA Local Chapters (USA; 2X; presentations)
- TEDx Seoul (Korea; presentation)
- Thomas Alva Edison High School (USA; workshop)
- TEDx Sookmyung University (Seoul; presentation)
- Chungbuk University (Korea; speech)
- Handong University (Korea; presentation)

- Hanyang University (Korea; speech)
- Youngnam University (Korea; presentation)
- Hongik University (Seoul; 3X; speech/presentation/workshop)
- Oregon Graduate Institute (USA; 2X; seminars)
- Portland State University Creative Studies Program (USA; workshop)
- ABEEK Engineering Education Organization (Korea; lecture)
- Innovation Center for Engineering Education (ICEE; Korea; 2X; lecture)
- International Conference on Software Engineering (ICSE; Hawaii; keynote)
- Amore Pacific Corporation (Seoul; innovation workshop)
- Pantech Corporation (Seoul; 3X; lecture/workshop/project)
- Intel Corporation (USA; seminar)
- Hyundai Motor Company (Korea; seminar)
- Kookmin University Business and Management School (Seoul; presentation)
- Stanford-IDAS Executive Program (Seoul; 2X; presentation/seminar)
- IDAS New Millennium CEO Conference (Seoul; presentation)
- Interview on Korean Arirang TV program Heart-to-Heart (Seoul; interview)
- Arirang Today Special Series (Seoul; interview)
- Korea Craft & Design Foundation (Seoul; lecture)
- Frisbee Apple Store (Seoul; presentation)
- KAID Pin Upp Awards (Korea; 3X; jury)
- Tokyo University of Science (TUS) MIP Department (Japan; 3X; lecture)
- University of Tokyo IP Conference (Japan; 2x; speech/panel)
- Intellectual Property Association of Japan (IPAJ) Symposium (Tokyo; lecture)
- A+ Apple Store (Seoul; lecture)
- Apple Design & Lisa Exhibit (Dongdaemun Design Plaza; Seoul, Korea; 2017)
- IDEEA educational website, design thinking videos, syllabus & project design brief (2019)

DESIGN PATENTS

- Apple Computer Lisa computer design patent.
- Apple Computer floppy disk bezel slot design patent.
- InFocus Corporation LP210 projector system design patent.
- TransFRESH Corporation atmosphere controller utility patent.

DESIGN AWARDS

- Multiple international design awards for InFocus Corporation's LP210, LP730, and LP750 Digital/Video Projection Systems.

UNIVERSITY AND PROFESSIONAL HONORS AND SOCIETIES

- Represented the Stanford University Design Division on the ICSID Japan Tour for three months in 1973.
- Graduate Fellowship in Chemical Engineering at Iowa State University, 1968-1969.

- O.J. Ferguson Award for Most Outstanding Senior Engineer at University of Nebraska, 1967.
- Elected to the following university honor societies:
 - ✦ Member, Omega Rho, management science honor society (Portland State University).
 - ✦ Member, Pi Mu Epsilon, mathematics honor society (University of Nebraska).
 - ✦ Member, Sigma Tau, engineering honor society (University of Nebraska).
 - ✦ Member, Phi Eta Sigma, academic honor society (University of Nebraska).
 - ✦ Member, Pi Lambda Epsilon, chemistry honor society (University of Nebraska).

PROFESSIONAL & ACADEMIC REFERENCES

Professional and academic references are available upon request.

PROFESSIONAL PORTFOLIO OF WORK

A visual portfolio of professional and academic design and management work is available upon request.

DOCTORAL THESIS

A PDF copy is available upon request.

NOTES: