UICHUNG "FRANCIS" CHO

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Teaching Interest

Manufacturing Process
CAD CAM
Design Theory and Techniques
Geometric Design
Dynamic System Modeling for Design
Modeling for Design
SolidWorks
Engineering Management
3D Vision Sensor Applications
Mechanical System Design
Robotics and Factory Automation
Six Sigma in Design and Manufacturing
Machine Element Design
Design Optimization
ANSYS
Reverse Engineering
3D Printing Technology
Virtual Reality for Engineers

Education

Ph.D., Mechanical Engineering: The University of Texas at Austin, August 1999
Dissertation: Novel Empirical Similarity Method for Rapid Product Testing and Development
Advisor: Kristin L. Wood, Co-advisor: Richard H. Crawford

Master of Science, Mechanical Engineering: Yonsei University, Seoul, Korea, August 1989
Thesis: Effective Inverse Kinematics and Link Parameter Calibration for Precise Position Control of Robots

Bachelor of Science, Mechanical Engineering: Yonsei University, Seoul, Korea, August 1986

Teaching Experiences

Assistant Lecturer: **Engineering Design Theory and Techniques** 01/97 - 12/98
The University of Texas at Austin
Contributed to Engineering Foundation Faculty Excellence Award, Halliburton Teaching Award from The University of Texas at Austin in 1997 and 1998.
Lectured how to transform customer needs into design concepts, embodiments, and detailed designs through realistic design projects to senior level undergraduate students.
Taught advanced manufacturing and design techniques, including reverse engineering, parametric redesign and six sigma in real industry.

Teaching Assistant: Machine Elements 01/96 - 12/96
The University of Texas at Austin
Delivered lectures on machine element design
Evaluated mechanical component design projects and assignments.
Assisted and graded student's design problem solving.

Teaching Assistant: Dynamic Systems and Control Lab 01/94 - 12/95
The University of Texas at Austin
Designed and demonstrated electrical, thermal and fluidic experiment systems for junior level undergraduate students.
Taught how to run experiments and derive mathematical models.

Lecturer: Robotics and Manufacturing Process 03/88 - 08/88
Yonsei University, Seoul, Korea
Lectured fundamentals of robotics and mass manufacturing processes.

Invited Lectures

"Rapid Prototyping and Manufacturing" April 2000
Korean-American Scientists and Engineers Association, Sponsored by Samsung
"Novel Empirical Similarity Method" June 1999
Faculty Search Committee, The University of Missouri-Rolla
"Similarity and Manufacturing for Design" August 1998
Faculty Search Committee, Yonsei University, Seoul, Korea

Research and Industry Experiences

CTO, Co-founder, *VoRo Technology LLC* 01/08 - Present
Developed and demonstrated full body gesture recognition sports-game system to attract $120,000 startup funding from VREthics.
Attracted $120,000 startup funding from VREthics ltd.
Patented hand-free user interface technology for mobile and wearable computers.
Presented next generation user interface concept using 3D camera to Intel.
Presented remote diagnosis system for Parkinson's disease patients to Bluetelcom.

Senior Engineering Manager, *Hitachi-LG Data Storage* 09/00 - 12/07
Improved product development and manufacturing cycle of optical data storage drive to Dell computer by applying lean six sigma.
Improved and resolved line and field quality issues by applying six sigma techniques.
Audited manufacturing and assembly processes of LG electronics twice a year.
Delivered more than 30 technical presentations to RMSD of Dell computer.

Field Application Engineer, *LG Electronics USA* 09/99 - 09/00
Consulted on LG design process for improvement.
Aligned the product development cycle of Dell and LG.
Setup CRM process and tripled the number of qualification projects to Dell.

Research Assistant, *Manufacturing and Design Lab, The University of Texas at Austin,* 01/95 - 05/98
(Supported by NSF and 3 Industrial Companies Including Ford)
Established a new design process named Cybernetic-Physical (CyPhy).
Designed solid models with ProE and SolidWorks.
Performed multi-field simulations with ABAQUS and ANSYS.
Designed and fabricated rapid prototypes with DTM Laser Sinterstations for functional test.
Integrated computer and physical models.

Research Scientist, *Robotics and Fluid Control Lab, Korean Institute of Science and Technology (KIST)*
Created unique factory automation concept. 05/90 - 05/92
Transformed the concepts into engineering designs.
Implemented manufacturing automatic welding robot calibration cell Hyundai Motors.
Implemented side mirror routing-cutting robot system to Hyundai subsidiary.

Accomplishments

Selected as IdeaConnection's top problem solver 2010
Delivered more than 90% of HLDS technical presentation to Dell computer 2002-2007
Contributed HLDS to Best Supplier Award to Dell Computer
2002

Reviewer of ASME International Design Automation Conferences 2001
Reviewer of ASME International Design for Manufacturing Conferences 2000
Finalist for the tenure-track faculty position, *The University of Missouri-Rolla* 1999
Contributed Chapter 17 to *"Product Design" by Kevin Otto and Kristin Wood (Prentice Hall)* 1998
Best Design Award at *Rehab Engineering and Assistive Technology Society of North America* 1997
Participated in developing *DTEACh at the University of Texas, Science curriculum for K-12 students and teachers* 1995-1997

Publications

"An Advanced Method to Correlate Systems with Distorted Configurations,"
Uichung Cho, Alan Dutson, Kristin Wood, Richard Crawford
ASME Journal of Mechanical Design, January 2005, Volume 127, Issue 1, pp. 78-85

"Online Functional Testing with Rapid Prototypes: A Novel Empirical Similarity Method,"
Uichung Cho, Kristin Wood, Richard Crawford
Rapid Prototyping Journal, Vol. 4, No. 3, 1998, pp 128-140

"Positioning Accuracy Improvement of Robot by Link Parameter Calibration,"
Uichung Cho, Young-Kyun Ha, Sang-Jo Lee, Young-Pil Park
Journal of Korean Society of Precision Engineering, Vol. 6, No. 3, 1989, pp 32-45

Selected Presentations

"Agile Product Testing with Constrained Prototypes" Uichung Cho, Kristin Wood, Richard Crawford
Proceeding of 1999 Solid Freeform Fabrication Symposium, Austin, Texas, September, 2000

"Correlation of Systems with Distorted Configurations" Uichung Cho, Kristin Wood, Richard Crawford
Proceedings of ASME Design Engineering Technical Conferences, Design Automation Conference, Las Vegas, Nevada, September, 1999, DETC99/DAC8606

"Error Measures for Functional Product Testing," Uichung Cho, Kristin Wood, Richard Crawford
Proceedings of ASME Design Engineering Technical Conferences,
Design for Manufacturing Conference, Las Vegas, Nevada, September, 1999, DETC99/DAC8913

"Novel Empirical Similarity Method for the Reliable Functional Testing with Rapid Prototypes,"
Uichung Cho, Kristin Wood, Richard Crawford
Proceedings of ASME Design Engineering Technical Conferences, Design Automation Conference, Atlanta, Georgia, September, 1998, DETC98/DAC5605

"Online Functional Testing with Rapid Prototypes," Uichung Cho, Kristin Wood, Richard Crawford
Proceedings of the 7th Conference on Rapid Prototyping and Manufacturing, Achen, Germany, 1998