

## **Education and Research Activities**

Research groups of the department of industrial design are as follows.

### **□ Product & Environmental Systems Design Research Laboratory**

This laboratory focuses on product & environment system (PES) design research for the richness and comfort of humans. Major research interests include environment system design, emotional design and robot design. The PES lab has interests in various relationships and functional disorders generated from the product and environmental systems, and tries to solve design problems through interdisciplinary courses with emotional engineering, cognitive science and psychology. Also, PES lab conducts research on motion approach to robot design and develops robot design guidelines through a study of the robot's behavior, correlation analysis and human-environment conflict. Representative research projects include "research on design systematization and industrialization of urban environment equipment", "cultural comparison among Korea, China and Japan," "development of emotional robot," "development of design guidelines for humanoid robot," and "development of elder's daily life support robot design."

### **□ Design Management Laboratory**

Along with the growing need for synergy between business and design, design management strives to identify key roles of design in business systems to maximize the quality and productivity of design services. Design Management Laboratory regards design as a strategic way of improving organization's competitiveness and studies for producing a body of design management knowledge for developing design strategy and policy, and effective operation management of organizations and processes. We work with various organizations to resolve real-world issues by utilizing both quantitative and qualitative methods in relation to identifying new product opportunities and design concepts, establishing design strategy, analyzing customer perceptions and preferences, and others. Main research areas are: National Design Promotion Strategy, Corporate Design Management System, Design Management Consulting, Design and Intellectual Property, Designing Brand Equity, design leadership, design merchandising, design evaluation and other relevant issues.

### **□ Human-Centered Interaction Design Laboratory**

HCIDL (Human-Centered Interaction Design Lab) focuses on planning and developing human-centered interaction through in-depth research for physical, cognitive, emotional, and socio-cultural aspects of human beings. Research interests include 'Design Planning' for developing innovative design strategy and concept through user-centered design, contextual inquiry, and future research; 'User-Interface Design' which focuses on developing and evaluating user-interface design by understanding a user's cognitive information process; 'Emotional Design' for a user's emotional satisfaction; 'Cultural Design' for reflecting a user's socio-cultural characteristics on design. In order for systematic application of research interests, HCIDL develops diverse design tools and software such as video-annotating program for user-observation, remote usability testing program, mouse tracking software, wearable camera for understanding mobile-user's behavior. HCIDL is harnessed with state of art facilities including usability testing room with full equipment of video recording and observation tools, gaze analyzer, and portable ethnographic tool kit for user-observation.

### **□ Collaboration and Interaction Design Research Laboratory**

This laboratory investigates research issues of collaboration and interaction from the design perspective. Collaborative designs are concerned with the tools, methods and environments to achieve better design quality by working together with other designers, other professionals and end users. Interaction design is in the upper level of collaborative design. Interaction is understood as a cyclic process in which two actors alternatively listen, think, and speak. In this respect, the research laboratory focuses on new tools and techniques to facilitate seamless and efficient human-human and human-product / system interactions. With the design methods investigated, the

research also addresses real product and interaction design problems. Representative research and consultancy projects include 'the development of prototyping tools for designers', 'case studies of remote participatory design workshops', 'augmented reality-based collaborative 3-D CAD system and intuitive modeling interface,' 'new concepts of home appliances,' and 'information architecture generation tool for consistent software interface identity.'

#### **□ Design Media Laboratory**

The advent of new media has exchanged human lifestyle, thinking style, and the style of form. Design media is the hardware and software employed in developing design ideas. Technological innovation in design media facilitates new ways of designing. The Design Media Laboratory investigates the useful applications of emerging technologies which can augment designer's creativity and enrich human life. Currently, our research activities are focused on hyper design media and tangible communication media. Hyper design media combines both the versatility of digital tools and the tangibility of traditional design material using augmented reality and physical computing technology. We think of products as tangible communication media and investigate the way that enriches human-to-human and human-to-artifact interactions in ubiquitous computing environment using tangible communication media.

#### **□ ID+IM Design Laboratory**

"ID+IM" is multi-disciplinary product design laboratory based in Korea, founded by Prof. Sangmin Bae in 2005. "ID+IM" is an abbreviation for 'I design, therefore I am' which is from Rene Descartes' famous quote 'I think, therefore I am' and means our design directions of Innovative Design, Intuitive Design and Interactive Design as well.

ID+IM Lab is only for designers who deeply understand the importance of design as well as social role of designers based on the belief of 'I design, therefore I am.' Breaking from the research-based study, we are pursuing an innovative, intuitive and practical design for the real world. Intuitive product design, Bio-design (studying organic system and basic form of nature), Green design (considering sustainability and environmental-friendly) and interactive design using physical computing are our design interests. Especially we design products which can be shared by society and give benefits back to society to achieve the concept of "Design is sharing" in design ethics. For designing real-world products, we have been participating international competitions and as the result of our efforts, we won Best of the Best awards and Best for 2007 Reddot Design award and awarded two Silver award prizes for 2008 IDEA Competition. We are developing new innovative and experimental product designs for a daily life and participating various international design shows and competitions to promote and release them into a real market.

#### **□ Design IS Laboratory**

Design IS (Integration and Strategy) lab seeks ways to integrate multi-disciplinary elements within design process strategically. Design IS lab seeks ways to achieve design innovation through integration between strategic left brain and emotional right brain. By doing so, Design IS continues to explore what 'designing is'.

#### **□ Creative Interaction Design Laboratory (CIxD Lab)**

In the CIxD Lab, we explore and develop various approaches for creative design thinking and activities especially when the products and the services we design integrate various emerging computing and information technologies. We are currently working on the following research areas: 1) developing methods and tools for understanding people and context to discover opportunities for innovative interactive systems design, 2) establishing both theoretical and practical approaches for conceptualizing interaction qualities of artifacts to support experiential aesthetics, and 3) developing frameworks for supporting creative interdisciplinary design teamwork especially when intensive information is involved. In our research activities overall, we particularly focus on how design can promote quality of experience, empathic values, and enhancement of human potential.

#### **□ Color and Emotion for Design Laboratory**

We empirically explore the affective experiences of humans with a particular focus on affective judgment related to color. Currently, in 2009, we are fostering multidisciplinary research in various topics such as color psychology and emotional design. Ultimately, we aim to provide scientific evidence for design research and creativity development using designerly research methodologies.

#### **□ Design Technology Laboratory**

Design Technology Lab. (DTL) is the intersection spot of traditional design practices and digital technologies. Its research focuses on 1) understanding/analyzing the current design workflow and ideation/presentation/communication skills, 2) designing/implementing/evaluating novel interaction techniques/systems for design activities, and 3) suggesting new paradigms for both the real design process and design education.