Department of Industrial Design	**Homepage:** id.kaist.ac.kr
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Industrial design began with form-giving for mass-produced products. Its role has since expanded to creating products, services and systems in both tangible and intangible forms, based on insights into the human, technology and business. ID KAIST (Industrial Design Department, KAIST) was the first design department to be established at a university of science and technology in S. Korea. It is a successful model of a systemic approach to design education, research and university-industry collaboration. We produce design experts with an understanding of science and technology. We explore creative application of science and technology with people-centred approaches. We focus on creating design solutions integrated with discovering new problems, ensuring business viability and technical feasibility, and satisfying people's needs. To this end, we carry out research into empirical cases, theories, principles, methodology and tools.

◼ **Research areas and activities**

The members of ID KAIST are leading design professionals and researchers who are creating new user experiences through their understanding of cutting-edge technology and the ability to identify user needs and initiate business innovation. They contribute in diverse areas through mindsets and methods that allow them to view problems, (re)frame them, and deal with ambiguity in systematic ways. Research Labs are grouped by three areas: Human-Centered Design, New Technology Convergence, and Business Innovation.

- The Human-Centered Design group emphasizes the human perspective of understanding, thinking and solving the design problem. The related labs are in the following:

o Human-Centered Interaction Design Lab
o Creative Interaction Design Lab
o Color Lab
o Next Interface Lab

- New Technology Convergence group focuses on integrating new technology into the problem-solving process of design issues and proposing novel solutions. The related labs are in the following:

o Collaboration and Interaction Design Research Lab
o Wonder Lab
o Sketch Lab
o My design lab
o MAKinteract Lab

- Business Innovation group pursues business opportunities of creative thinking and design outputs, and the related labs are in the following:

o ID+IM Lab
o Designize Lab

◼ The 11 Laboratories in three groups:

- HUMAN-CENTERED DESIGN

❐ Human-Centered Interaction Design Lab: Prof. Kun Pyo Lee
Design planning, User observation and usability test, User interface design, Scenario and cultural design

We focus on planning and developing human-centered interaction through in-depth research on 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. 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.

❏ Creative Interaction Design Lab (CIxD Lab): Prof. Youn-kyung Lim
Creative and quality-centered design, Experience-centered design, Prototyping & Interactive systems design

We are exploring various design approaches and possibilities in the advent of new digital and computational technologies. In particular, we are currently focusing on the following topics. 1) Redefining UX (User Experience) design concept and theory as we face with the 4th Industrial Revolution era, 2) developing human-centered research methods and tools for creative interaction design, and 3) developing new concepts of interaction design approaches and theories under the new technology development. In our research activities overall, we particularly emphasize how design can promote quality of human life, experience, values, and enhancement of human potential.

❏ Color lab: Prof. Hyeon-Jeong Suk
Color psychology, Emotional lighting, Visual ergonomics

By exploring human visual perception and emotional experience through explorative methods, we aim at logical product and service design development. In particular, we apply our expertise in light and color research to the industry. Applications include indoor and outdoor lighting, color of products and environment, imaging for digital content and display. We seek to create new value through synergies between science and engineering, such as colorimetry and scientific experiment design, psychological analysis techniques, and design theories. We aim to promote interdisciplinary research, and ultimately pursue a scientific basis for design studies and develop creativity through design.

❏ Next interface lab: Prof. Sangsu Lee
User interface design, Natural user interfaces including AI-based conversational UI, User-centered design

In the Next interface lab., we like to look for the next generation of user interface designs that provide a better user experience and can change the future better. Our studies focus on how the latest technology can come into our life and enable interaction between humans and computers more natural, through the user-centered approach. We are currently conducting research on AI-based conversational UI, but not limited to this. By keep asking what the role of design will be in the future, we would contribute to shape the unpredictable future into a better human-centered future.

• NEW TECHNOLOGY CONVERGENCE

❏ Collaboration and Interaction Design Research Lab: Prof. Tek-Jin Nam
Interaction design. Co-design. Augmented design. Prototyping. Systematic design method. Smart product system environment design

Focusing on Co-Design and Interaction Design, this laboratory conducts research on Augmented Design. In a narrow sense, Augmented Design is a field of research applying emerging information technology such as Augmented Reality into design. In a broader sense, it covers

future things that augment human life, or methods and tools to support design activities. Thus, the research activities involve proposing concepts of things that provide true happiness for people especially beyond utility and performance, developing working prototypes, studying with users and understanding user experience. The development and the evaluation of systematic design methods and tools are another research agenda of Augmented Design. The focal subject matters of design research are hardware-software integrated system, such as smart environments, IoT devices, intelligent vehicles and robots.
cidr.kaist.ac.kr

❐ Wonder Lab: Prof. Woohun Lee
Interaction design, User experience design, New media design, Design for pleasurability and fun

Humans are Homo Ludens. Pleasurability is also an important factor in human-product interaction as well as practicality. Wonder Lab designs pleasurability and fun. We develop new products, contents, services, and medium by integrating technology and artistic inspiration with design thinking. To do this, we explore how to apply new design materials and interactive technologies to user experiences. We carry out a number of projects related to industrial fields such as play, sports, education, and games: mixed reality play using everyday objects, novel input devices to improve immersion in virtual reality, and interactive installations for science museums.
wonderlab.kaist.ac.kr

❐ Sketch Lab: Prof. Seok-Hyung Bae
Ideation, presentation, communication skills, New interaction techniques & systems for design activities, New paradigms for design processes and education

SketchLab envisions convergence of traditional design practice and digital technology. Our research focuses on 1) analyzing the current design workflow and ideation, presentation, and communication of designers, 2) designing, implementing, and evaluating new interaction techniques and systems for design activities, 3) proposing new paradigms for actual design practice and design education.

❐ My Design Lab: Prof. Daniel Saakes
Physical design tools, Custom design as service, Local manufacturing using digital fabrication

In my design laboratory we study users as designers and makers of their own life. We want everybody to create the things they need, want and desire. We are interested in and natural and embodied interaction and employ acting and posing as input for generative design. We develop prototypes for the next generation design toolkits that make use of Augmented Reality, actuated objects with agency and personal fabrication devices. In design projects, we apply these toolkits ourselves to design for a wide variety of industries ranging from food design to consumer electronics and automotive design.
mid.kaist.ac.kr

❐ MAKinteract Lab : Prof. Andrea Bianchi
Prototyping tools & fabrication, Human augmentation, Human computer interaction

The MAKinteract Lab research focus in in the field of Human-Computer Interaction (HCI), at the intersection between engineering and design. Through user-centered design, fabrication, iterative prototyping and users studies we make new tangible and wearable systems to understand human behavior and imagine yet unseen interactions. Specifically we currently work on two topics: 1) human augmentation through enhanced wearable devices, and 2) prototyping toolkits to help designers creating interactive products. Our work appeared in several prestigeous venues, such as CHI, UIST and Siggraph, and was covered in the media by Engadget, ZDnet, New Scientist, MAKE, Gizmodo, Slashdot, and many more.

• BUSINESS INNOVATION

❐ ID + IM lab : Prof. Sangmin Bae

Philanthropy Design, Social Innovation through Design, CSV design

ID+IM focuses on "Philanthropy Design" by suggesting creative design solutions to various social challenges. In advanced countries, we work on the "Nanum Project", donating entire proceeds from the products to children in need as scholarship. In developing countries, we undertake the "Seed Project", solving urgent needs that people facing with appropriate technology solutions. Additionally, in cooperation with company and government, we create win-win effects to corporation and society as adding the design value to their CSV(Creating Shared Value) activities. With a wide range of projects, we underline social responsibility of designers and social innovation through design and address the problems of the underprivileged.

❐ Designize Lab. : Prof. Ki-Young Nam
Strategic integration of design, Policymaking by design, Designing business, technology and social innovation

To "Designize" is, through research, to bring design values and benefits to areas within and beyond design and design management by strategic utilization of design for both tangible and intangible design outcomes. Designize explores using design as a key driver for innovations in business, technology and society based on design thinking - involving experiences, engagement and services. Our lab continuously pushes the boundaries of design management research with research topics such as designing public policies, social innovation and welfare systems, civic engagement, and alleyway revitalization based on circular economy. We also embrace technology in our research more proactively, with research topics including digital civics, future envisioning for technology with undefined utility and interactive advertising.