

Department of Design

Key words

Product Design, UI/UX design, Smart city, Engineering Design, Traditional crafts and local industries



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Professional Background

FreeBit Co., Ltd. JTOWER Inc.

Consultations, Lectures, and Collaborative Research Themes

Product Design, UI/UX design, Smart city & Smart town, Digital Manufacturing

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Main research themes and their characteristics

「Design Methodologies for Innovation in Traditional Crafts and Local Industries」

Traditional crafts and local industries are rare and important intellectual resources from the perspectives of cultural heritage preservation and economic revitalization in a region. In some cases, the involvement of designers in these craft industries has led to new product development and the exploration of new sales channels. Building upon such examples, we are researching design methodologies to further expand product development into entirely different domains. Specifically, we are reevaluating the aspects of form, material, manufacturing methods, and functionality from a product design perspective to create novel designs. For example, in terms of approaching from the aspect of form, we are researching mathematically complex shapes known as topological forms with the aim of conceptualizing new forms. Additionally, as an approach from the perspective of manufacturing methods, we are exploring the combination of traditional techniques and new techniques through the study of new processing methods utilizing digital technologies such as 3D printing. Through the exploration of such methodologies, we are researching the applicability of design methodologies to enable new product development in traditional crafts and local industry products.



Fig.1 Topological form CAD data and 3D printing model

「Constructive Approach through Advanced Design」

The methodology known as Advanced Design is recognized for envisioning and proposing the functionalities and forms of necessary or desirable objects, based on the prediction of future social trends. This approach aims to design the ideal state by predicting future societal environments. We think that this process of Advanced Design can be applied to a constructive approach, which seeks to understand phenomena by creating them. For example, in the field of robotics, this approach has been used to reveal human cognitive mechanisms through the interaction between functioning robots and humans. As an example of applying this approach to design studies, conducting Advanced Design for medical devices that support healthcare practices has the potential to lead to the discovery of improved medical practices and the development of new treatment methods. Through the communication among specialists, users, developers, and designers facilitated by the designed artifacts, we are researching problem-solving methodologies and innovative approaches that foster new ideas.



Fig.2 Case Study of Advanced Design in Intravenous Injection Support Instrument

Major academic publications

Study of Development Design on Vein Injection Support Equipment that uses Prototyping in Design Methods Reviewed, Takashi Ogawa, Toshikatsu Hunayama, Ichiroh Kanaya, Kazuo Kawasaki, Journal of Japan Society of Computer Aided Surgery 10 (4) 521 - 528 2008.12

Research on Design Development of New Prefilled Syringe Reviewed, Takashi Ogawa, Noshige Ogawa, Ichiro Kanaya, Kazuo Kawasaki, Transactions of Japanese Society for Medical and Biological Engineering 46 (4) 458 - 464 2008.8