Design is ubiquitous; it pervades all spheres of life, and has been around ever since life has been engaged in purposefully changing the world around it. While some designs have transcended time, most designs are in a perpetual process of being evolved. Research into design and the emergence of a research community in this area have been relatively new, its development influenced by the multiple facets of design (human, artefact, process, organisation, ecology, micro- and macro-economy by which design is shaped and which it shapes in turn) and the associated diversification of the community into those focusing on various aspects of these facets, in various applications. Design is complex, balancing the needs of multiple stakeholders, and requiring a multitude of areas of knowledge to be utilised, with resources spread across space and time.

The collection of papers in two book volumes constitutes the Proceedings of the Sixth International Conference on Research into Design (ICoRD’17) held at the Indian Institute of Technology Guwahati, Guwahati, India during 9–11 January 2017. ICoRD’17 is the sixth in a series of biennial conferences held in India to bring together the international community from diverse areas of design practice, teaching and research. The goals are to share cutting-edge research about design among its stakeholders; aid the ongoing process of developing a collective vision through emerging research challenges and questions; and provide a platform for interaction, collaboration and development of the community in order for it to address the global and local challenges by forming and realising the collective vision. The conference is intended for all stakeholders of design, and in particular for its practitioners, researchers, teachers and students.

348 abstracts was submitted to ICoRD’17 and selected for full paper submission. 223 full papers were submitted, which were reviewed by experts from the ICoRD’17 International Programme Committee comprising 241 members from over 151 institutions or organisations from 32 countries spanning five continents. Finally, 177 full papers, authored by 356 researchers (356 unique authors, actually 502 author entries in 177 papers) from 117 institutions and organisations from 19 countries spanning six continents, were selected for presentation at the conference and for publication as chapters in this book. ICoRD has steadily grown over
the last five editions, from a humble beginning in 2006 with 30 papers and
60 participants, through 75 papers and 100 participants in ICoRD’09, 100 papers
and 150 participants in ICoRD’11, 114 papers and 170 participants in ICoRD’13, to
118 papers and 200 participants in ICoRD’15.

ICoRD’17 had 129 podium papers, and 48 papers with brief podium presenta-
tions followed by poster display and discussion. It had keynotes from prominent
researchers and practitioners from around the world such as: Tetsuo Tomiyama
from Cranfield University, UK, Jinan KB from Reimagining School, India, Cees de
Bont from Hong Kong Polytechnic University, Hong Kong, Nitin Gupta from
sickle Innovations, India, Monica Bordegoni from Politecnico di Milano, Italy,
Pradeep G. Yammiyavar, IIT Guwahati, India, and Arun Garg, University of
Wisconsin-Milwaukee, USA. It had one panel discussion on “Practice of Design”,
and four workshops, on Decision-Making in Design, Emotional Engineering,
Publishing Papers, and Asia Design. From 2015, ICoRD started giving ICON³
awards (acronym for ICoRD Outstanding Contribution to designN scienCe and
educatioN) to outstanding contributors to design education and research. Prof. Sudhakar Nadkarni from Welingkar Institute of Management, India, and
Prof. John Gero from George Mason University, USA were selected as ICON³
awardees for 2015, for their outstanding contributions to design education and
design research respectively. Prof. Tetsuo Tomiyama of Cranfield University, UK
and Professor Cees de Bont from Hong Kong Polytechnic University, Hong Kong,
have been selected as the ICON³ awardees for 2017.

The chapters in the two book volumes together cover all three major areas of
products and processes: functionality, form and human factors. The spectrum of
topics range from those focusing on early stages such as creativity and synthesis,
through those that are primarily considered in later stages of the product life cycle,
such as safety, reliability or manufacturability, to those that are relevant across
the whole product life cycle, such as collaboration, communication, design man-
agement, knowledge management, cost, environment and product life cycle
management. Issues of delivery of research into design, in terms of its two major
arms: design education and practice, are both highlighted in the chapters of the
book volumes. Foundational topics such as the nature of design theory and research
methodology are also major areas of focus. It is particularly encouraging to see in
the chapters the variety of areas of application of research into design—aerospace,
healthcare, automotive and so on.

The theme of ICoRD’17 has been “Design for Communities”. While Design
traditionally focused on the development of products for the individual, the
emerging consensus on working towards a more sustainable world demands greater
attention to designing for and with communities, so as to promote their sustenance
and harmony—within each community and across communities. ICoRD’17 has
been hosted at the foothills of the Himalayas in the north-east of India, which is
home to myriad linguistic and cultural communities with their own traditions,
heritage and aspirations. It was only appropriate that the theme for ICoRD’17
aligned with this ambiance.
This volume, ‘ICoRD’17—Design for Communities, Volume 1’ focuses on the topics of Design Theory, Research Methodology, Human Factors Design for X, Enabling Technologies, Design Management and Applications in Practice.

On behalf of the Steering Committee, Advisory Committee, Organising Committee and Co-Chairs, we thank all the authors, delegates, institutions and organisations that participated in the conference. We also thank members of the International Programme Committee for their support in reviewing the papers for ICoRD’17, which is essential for maintaining the quality of the conference, and for their support in putting this book together.

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