

# Digital Transformation Landscape in the Fourth Industrial Revolution (4IR) Era

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## **Digital Transformation Landscape in the Fourth Industrial Revolution (4IR) Era**

**4th Visual Informatics International Seminar 2018**

### **EDITORS:**

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## Preface

**W**e are indeed honoured to bring you this collection of articles from the 4th Visual Informatics International Seminar 2018 (VIIS'18) which was held in the Universiti Kebangsaan Malaysia or the National University of Malaysia (UKM), located in Bangi, Selangor from 13 to 15 November 2018. VIIS'18 was organised by the Institute of Visual Informatics (IVI), UKM together with the National Professors' Council (MPN) and several local public universities. IVI is the leading centre of excellence in Malaysia that focuses on research and innovation in the field of Visual Informatics rooted in Computer Science, Information Systems and Information Technologies disciplines.

Research on visual informatics is becoming increasingly important, as the world enters the fourth major industrial revolution (4IR) era which is characterised by a fusion of technologies: blending the physical, digital, biological and art worlds. This becomes a challenge for all disciplines, economies and industries, and has even challenged ideas about what it means to be human in the advent of advanced robotics and Artificial Intelligence technologies. Hence, this year VIIS'18 brings latest state-of-the-art theme: "Digital Transformation Landscape in the Fourth Industrial Revolution (4IR)" to cater the current needs on visual informatics. VIIS '18 aims to provide an excellent opportunity to share and exchange knowledge, technologies and applications in the field of visual informatics for academics, professionals, engineers, and industrial players worldwide. There is no doubt that every VIIS has encouraged the further advancement of visual informatics through fruitful discussions among researchers, experts, practitioners and specialists.

VIIS '18 was mainly organised by the research students in IVI. VIIS'18 provides a platform for research students to learn the full process of organising an academic seminar. Students were actively involved from the planning phase until the end of the seminar. This year, we received 33 submissions and 20 papers were selected for oral presentation. In addition, to encourage research students to present and discuss their research, several students were also invited to participate in the poster presentation during the seminar.

On behalf of the organising and programme committee of VIIS'18, we thank all authors who have contributed to the volume. We would like to thank the participants of the conference for their thought provoking ideas and active participation in the conference. We would also like to express our gratitude and heartfelt thank you to every staff and students of the Institute of Visual Informatics (IVI), Faculty of Information Science and Technology (FTSM), UKM and all committee members for their remarkable effort and unwavering dedication to ensure the success of VIIS '18. We also would like to express our appreciation to the the Grand Challenge or Arus Perdana Grants of UKM (AP-2017-005/1, AP-2017-005/2 & AP-2017-005/3) for their support in this seminar and publication of this proceedings.

13<sup>th</sup> November 2018

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