

2023 27th International Conference Information Visualisation (IV 2023)

**Tampere, Finland
25-28 July 2023**



**IEEE Catalog Number: CFP23199-POD
ISBN: 979-8-3503-4162-1**

**Copyright © 2023 by the Institute of Electrical and Electronics Engineers, Inc.
All Rights Reserved**

Copyright and Reprint Permissions: Abstracting is permitted with credit to the source. Libraries are permitted to photocopy beyond the limit of U.S. copyright law for private use of patrons those articles in this volume that carry a code at the bottom of the first page, provided the per-copy fee indicated in the code is paid through Copyright Clearance Center, 222 Rosewood Drive, Danvers, MA 01923.

For other copying, reprint or republication permission, write to IEEE Copyrights Manager, IEEE Service Center, 445 Hoes Lane, Piscataway, NJ 08854. All rights reserved.

****** This is a print representation of what appears in the IEEE Digital Library. Some format issues inherent in the e-media version may also appear in this print version.***

IEEE Catalog Number:	CFP23199-POD
ISBN (Print-On-Demand):	979-8-3503-4162-1
ISBN (Online):	979-8-3503-4161-4
ISSN:	1550-6037

Additional Copies of This Publication Are Available From:

Curran Associates, Inc
57 Morehouse Lane
Red Hook, NY 12571 USA
Phone: (845) 758-0400
Fax: (845) 758-2633
E-mail: curran@proceedings.com
Web: www.proceedings.com

CURRAN ASSOCIATES INC.
proceedings
.com

2023 27th International Conference Information Visualisation (IV) IV 2023

Table of Contents

Preface	xv
Acknowledgements	xvii
Organizing Committee	xviii
Organizing & Liaison Committee Symposium	xix
Reviewers	xxii
D-Art Gallery 2023	xxiv

1. Information Visualization

InfVis – Information Visualisation Theory & Practice

Visualization System to Analyze Browsing Trends of Internet Video Advertisements	1
<i>Rika Miura (Ochanomizu University, Japan), Hayato Ohya (Septeni Japan, Inc., Japan), and Takayuki Itoh (Ochanomizu University, Japan)</i>	
ReciPic: A Tool for Generating Infographic from Recipe Procedure Text	7
<i>Lechang Zhang (Ochanomizu University, Japan) and Takayuki Itoh (Ochanomizu University, Japan)</i>	
Using Autoencoders to Visualize Big Environmental Audio	13
<i>Benjamin Rowe (Queensland University of Technology, Australia), Philip Eichinski (Queensland University of Technology, Australia), Jinglan Zhang (Queensland University of Technology, Australia), and Paul Roe (Queensland University of Technology, Australia)</i>	
RespVis A D3 Extension for Responsive SVG Charts	19
<i>Keith Andrews (Graz University of Technology, Austria), David Egger (Graz University of Technology, Austria), and Peter Oberrauner (Graz University of Technology, Austria)</i>	
Relational Structure Visualization in Composition	23
<i>Kuan-Chen Chen (National Yunlin University of Science and Technology, Taiwan), Chung-Chian Hsu (National Yunlin University of Science and Technology, Taiwan), Teng-Wen Chang (National Yunlin University of Science and Technology, Taiwan), Chang-Franw Lee (National Yunlin University of Science and Technology, Taiwan), and Cheng-Gang Wang (National Yunlin University of Science and Technology, Taiwan)</i>	
Extending the Heatmap Matrix: Pairwise Analysis of Multivariate Categorical Data	29
<i>David Trye (University of Waikato, New Zealand), Mark Apperley (University of Waikato, New Zealand), and David Bainbridge (University of Waikato, New Zealand)</i>	

IV-App – Applications of Information Visualization

Fisheye Visualization and Multi-Path Trees for Presenting Clinical Practice Guidelines: Methods and Application to Covid-19	37
<i>Jean-Baptiste Lamy (LIMICS, INSERM, Université Sorbonne Paris Nord, Sorbonne Universités, France), Mouin Jammal (Lebanese Hospital Geitaoui, Lebanon), Melody Saikali (Lebanese Hospital Geitaoui, University Medical Center, Lebanon), Charbel Mourad (Lebanese Hospital Geitaoui, Lebanon), Cynthia Abi Khalil (LIMICS, INSERM, Université Sorbonne Paris Nord, Sorbonne Universités, France; Nursing Administration, Lebanese Hospital Geitaoui, Lebanon), and Antoine Saab (LIMICS, INSERM, Université Sorbonne Paris Nord, Sorbonne Universités, France; Lebanese Hospital Geitaoui, University Medical Center, Lebanon)</i>	
DataCrop: A Generic Tool for Crop Data Set Generation	43
<i>Radwa Hussein (German International University, Egypt), Kahlid Kahar (German University in Cairo, Egypt), Maggie Mashaly (The German University in Cairo, Egypt), and Nada Sharaf (German International University, Egypt)</i>	
3DSPOPP - 3D Scatter Plots of Octants with Projection Planes	48
<i>Shohei Nakamura (Kyushu University, Japan) and Yoshihiro Okada (University Library, Japan; Kyushu University, Japan)</i>	
Australian Animal Species Selection and Image Data Collection	55
<i>Qianqian Zhang (Victoria University, Australia), Khandakar Ahmed (Victoria University, Australia), Nalin Sharda (Victoria University, Australia), and Hua Wang (Victoria University, Australia)</i>	
Visualizing Maps of Visitors' Interest for Museum Exhibits with Single-Board Computers	64
<i>Shigeo Takahashi (University of Aizu, Japan), Yohei Nishidate (University of Aizu, Japan), Yukihide Kohira (University of Aizu, Japan), and Rentaro Yoshioka (University of Aizu, Japan)</i>	
Adding Visual Data and Interactions for Dynamic Data Physicalization with Augmented Reality	71
<i>Vinicius Favacho Queiroz (Federal University of Pará, Brazil), Diego Hortêncio dos Santos (Federal University of Pará, Brazil), Thiago Augusto Soares de Sousa (Federal University of Pará, Brazil), Walbert Cunha Monteiro (Federal University of Pará, Brazil), Tiago Davi Oliveira de Araújo (University of Aveiro, Portugal), and Bianchi Serique Meiguins (Federal University of Pará, Brazil)</i>	
A Genetic Algorithm for Automatic Dashboard Generation: First Results	77
<i>Praveen Soni (University of Tours, France), Cyril de Runz (University of Tours, France), Fatma Bouali (IUT, University of Lille, France), and Gilles Venturini (University of Tours, France)</i>	
Extending the Egocentric Viewpoint in Situated Visualization Using Augmented Reality	83
<i>Numo Cid Martins (Polytechnic Institute of Coimbra, Coimbra Institute of Engineering & IEETA, University of Aveiro), Bernardo Marques (IEETA, DETI, LASI, University of Aveiro), Paulo Dias (IEETA, DETI, LASI, University of Aveiro), and Beatriz Sousa Santos (IEETA, DETI, LASI, University of Aveiro)</i>	
Visualizing Tennis Matches as Nested Stories	90
<i>Ying Zhu (Georgia State University, USA) and Akhil Javvaji (Georgia State University, USA)</i>	

Towards Contextual Glyph Design: Visualizing Hearing Screenings	96
<i>Barbara Nascimento Ramos (University of Coimbra, Centre for Informatics and Systems of the University of Coimbra, Portugal), Catarina Maças (University of Coimbra, Centre for Informatics and Systems of the University of Coimbra, Portugal), Nuno Lourenço (University of Coimbra, Centre for Informatics and Systems of the University of Coimbra, Portugal), and Evgheni Polisciuc (University of Coimbra, Centre for Informatics and Systems of the University of Coimbra, Portugal)</i>	

IVE – Information Visualization Evaluation

An Accuracy Assessment for Active Data Physicalization	103
<i>Cleyton Luiz Ramos Barbosa (Federal University of Pará, Brazil), Thiago Augusto Soares de Sousa (Federal University of Pará, Brazil), Walbert Cunha Monteiro (Federal University of Pará, Brazil), Diego Hortêncio dos Santos (Federal University of Pará, Brazil), Tiago Davi Oliveira de Araújo (University of Aveiro, Portugal), and Bianchi Serique Meiguins (Federal University of Pará, Brazil)</i>	
Using Visualization Methods for Improving Web Navigation	109
<i>Azzah Alrebdí (University of Leeds, UK), Vania Dimitrova (University of Leeds, UK), and Roy Ruddle (University of Leeds, UK)</i>	
Exploring the Design of Visualizations of Personal Online Data Based on Users’ Mental Models	119
<i>Marija Dutz (Fraunhofer IGD, Germany), Nataša Starčević (TU Darmstadt, Germany), Steven Lamarr Reynolds (Fraunhofer IGD, Germany), and Jörn Kohlhammer (Fraunhofer IGD, TU Darmstadt, Germany)</i>	
Subject Experiments with a Learning Support System for Grover’s Algorithm	125
<i>Hayato Yasunaga (Okayama University, Japan), Mariko Sasakura (Okayama University, Japan), and Akito Monden (Okayama University, Japan)</i>	
A Review of Complexity Metrics for Data Visualization	131
<i>Ying Zhu (Georgia State University, USA)</i>	
Workload Evaluation to Create Data Visualization Using ChatGPT	136
<i>Walbert Cunha Monteiro (Federal University of Pará, Brazil), Diego Hortencio dos Santos (Federal University of Pará, Brazil), Thiago Augusto Soares de Sousa (Federal University of Pará, Brazil), Vinicius Favacho Queiroz (Federal University of Pará, Brazil), Tiago Davi Oliveira de Araujo (University of Aveiro, Portugal), and Bianchi Serique Meiguins (Federal University of Pará, Brazil)</i>	

HCI – Human-Computer Interaction for Information Visualization

Latent Attention Resource Estimation of Peripheral Visual Stimuli Using Microsaccade Frequency Modelling	142
<i>Minoru Nakayama (Tokyo Institute of Technology, Japan) and Takahiro Ueno (Tokyo Institute of Technology, Japan)</i>	
Modeling Human Recognition of Deformed Maps	148
<i>Ryoto Doi (University of Tsukuba, Japan) and Kazuo Misue (University of Tsukuba, Japan)</i>	
The Design of Interactive Spatio-Temporal Information Visualization – A Conceptual Model ...	155
<i>Sara Rodrigues (Universidade de Lisboa, Portugal)</i>	

GTNV – Graph Theory & Network Visualization

Interactive Network Visualization of Educational Standards, Learning Resources and Learning Progressions	161
<i>Reindert F. Reitsma (Oregon State University, USA), Brian Høglund (Naval Undersea Warfare Center Division, USA), Nikolas Achatz (Oregon State University, USA), and Andrea Marks (Oregon State University, USA)</i>	
Optimization of Hierarchical Graph Layout with a Genetic Algorithm and Sprawl/Clutter Metrics	166
<i>Ayana Murakami (Ochanomizu University, Japan) and Takayuki Itoh (Ochanomizu University, Japan)</i>	
Visualizing Congestion at Mass-Gathering Events with Proximity-Based Networks	172
<i>Sayaka Morikoshi (Ochanomizu University, Japan), Masaki Onishi (AIST, Japan), and Takayuki Itoh (Ochanomizu University, Japan)</i>	
Hierarchical Data Visualization of Gender Difference: Application to Feeling of Temperature	178
<i>Yuki Nakai (Ochanomizu University, Japan), Takayuki Itoh (Ochanomizu University, Japan), Hidekazu Takahashi (Fujitsu, Japan), Satoshi Nakashima (Fujitsu, Japan), and Tetsu Yamamoto (Fujitsu, Japan)</i>	

2. Knowledge Visualization

KV – Knowledge Visualization and Visual Thinking

Visual Variation: A Versatile Knowledge Visualization Method Based on Variation Theory	184
<i>Martin J. Eppler (University of St Gallen, Switzerland)</i>	
Giving Shape to Words: Visual Knowledge Discovery for Textual Contents in Legal Scenarios .	188
<i>Nicola Lettieri (National Institute for Public Policy Analysis (INAPP), Italy), Alfonso Guarino (Department of Law, Economics, Management and Quantitative Methods, University of Sannio, Italy), Delfina Malandrino (Computer Science Department, University of Salerno, Italy), Rocco Zaccagnino (Computer Science Department, University of Salerno, Italy), and Salvatore Del Piano (Computer Science Department, University of Salerno, Italy)</i>	
One Dataset – Three Stories: Data Storytelling for Climate Change Awareness	194
<i>Javier Lloret Pardo (Haute Ecole de Gestion, HESSO, Switzerland), Marielle Guirlet (Haute Ecole de Gestion, HESSO, Switzerland), Amir Alwash (Haute Ecole de Gestion, HESSO, Switzerland), Vincent de Vevey (Haute Ecole d'Art et Design, HESSO, Switzerland), David Nogueiras Blanco (Haute Ecole d'Art et Design, HESSO, Switzerland), Laetizia Sabatini Choquard (Haute Ecole de Gestion, HESSO, Switzerland), and René Schneider (Haute Ecole d'Art et Design, HESSO, Switzerland)</i>	
Visual Analysis of Voice in Crossover Singing	198
<i>Jie Hua (Shaoyang University, China) and Wei Yi (Macquarie University, Australia)</i>	

LA – 7th International Symposium Learning Analytics

Feasibility of Prediction of Student's Characteristics Using Texts of Essays Written During a Fully Online Course	204
<i>Minoru Nakayama (Tokyo Institute of Technology, Japan), Masaki Uto (The University of Electro-Communications, Japan), Satoru Kikuchi (Shinshu University, Japan), and Hiroh Yamamoto (Shinshu University, Japan)</i>	
Boulez: A Chatbot-Based Federated Learning System for Distance Learning	210
<i>Stefano D'Urso (Universitas Mercatorum, Italy), Filippo Sciarrone (Universitas Mercatorum, Italy), and Marco Temperini (Sapienza, University of Rome, Italy)</i>	

3. AI/ML, Visual Analytics & Visual Knowledge Discovery

VA – 13 International Symposium Visual Analytics and Data Science

Analyzing Spatio-Temporal Correlations with User-Oriented Guidance - An Interactive Visualization Approach for Demand-Oriented Limited Service Offers	216
<i>Alexander Rolwes (i3mainz, Institute for Spatial Information and Surveying Technology, Mainz University of Applied Sciences, Germany), Julian Stockemer (i3mainz, Institute for Spatial Information and Surveying Technology, Mainz University of Applied Sciences, Germany), and Klaus Böhm (i3mainz, Institute for Spatial Information and Surveying Technology, Mainz University of Applied Sciences, Germany)</i>	
Understanding the Forest: A Visualization Tool to Support Decision Tree Analysis	223
<i>Catarina Maças (University of Coimbra, Portugal), João R. Campos (University of Coimbra, Portugal), and Nuno Lourenço (University of Coimbra, Portugal)</i>	
Artificial Intelligence in Visual Analytics	230
<i>Kawa Nazemi (Darmstadt University of Applied Sciences, Germany)</i>	
NLP for Enterprise Asset Management: An Emerging Paradigm	238
<i>Pedro Santos (Lisbon School of Engineering (ISEL) Politécnico de Lisboa, Portugal; NOVA LINCS, NOVA School of Science and Technology, Portugal), Nuno Datia (Lisbon School of Engineering (ISEL) Politécnico de Lisboa, Portugal; NOVA LINCS, NOVA School of Science and Technology, Portugal), Matilde Pato (Lisbon School of Engineering (ISEL) Politécnico de Lisboa, Portugal; LASIGE, FCUL, Universidade de Lisboa, Portugal), José Sobral (Lisbon School of Engineering (ISEL) Politécnico de Lisboa, Portugal; CENTEC, Technical University of Lisbon (IST), Portugal), Nuno Gomes (Lisbon School of Engineering (ISEL) Politécnico de Lisboa, Portugal; NOVA LINCS, NOVA School of Science and Technology, Portugal), Noel Leitão (TDGI – Property Management Technology, Portugal), and Manuel R. Ferreira (TDGI – Property Management Technology, Portugal)</i>	
Visual Analytics for Corporate Foresight - A Conceptual Approach	244
<i>Lennart B. Sina (Darmstadt University of Applied Sciences, Germany), Cristian A. Secco (Darmstadt University of Applied Sciences, Germany), Midhad Blazevic (Darmstadt University of Applied Sciences, Germany), and Kawa Nazemi (Darmstadt University of Applied Sciences, Germany)</i>	

Visual Analytics for Forecasting Technological Trends from Text	251
<i>Cristian A. Secco (Human-Computer Interaction and Visual Analytics - Darmstadt University of Applied Sciences, Germany), Lennart B. Sina (Human-Computer Interaction and Visual Analytics - Darmstadt University of Applied Sciences, Germany), Midhad Blazevic (Human-Computer Interaction and Visual Analytics - Darmstadt University of Applied Sciences, Germany), and Kawa Nazemi (Human-Computer Interaction and Visual Analytics - Darmstadt University of Applied Sciences, Germany)</i>	
Recommendations in Visual Analytics - An Analytical Approach for Elaboration in Science	259
<i>Midhad Blazevic (Darmstadt University of Applied Sciences, Germany), Lennart B. Sina (Darmstadt University of Applied Sciences, Germany), Cristian A. Secco (Darmstadt University of Applied Sciences, Germany), and Kawa Nazemi (Darmstadt University of Applied Sciences, Germany)</i>	
A Data Discovery and Visualization Tool for Visual Analytics of Time Series in Digital Agriculture	268
<i>Jasmin K. Dhaliwal (University of Manitoba, Canada), Megan E. Galbraith (University of Manitoba, Canada), Carson K. Leung (University of Manitoba, Canada), and Da Tan (University of Manitoba, Canada)</i>	
 AI&VKD – 3rd AI and Visual Knowledge Discovery	
Analysis of Breathing Rate in a Multi-Scenario Driving Acquisition	272
<i>Adara Andonie (OCTO Sensing Team, Xperi Inc., Ireland), Ashkan Parsi (OCTO Sensing Team, Xperi Inc., Ireland), Amr Elrasad (OCTO Sensing Team, Xperi Inc., Ireland), and Joseph Lemley (OCTO Sensing Team, Xperi Inc., Ireland)</i>	
Information Plane Analysis Visualization in Deep Learning via Transfer Entropy	278
<i>Adrian Moldovan (Transilvania University; Siemens SRL, Romania), Angel Cațaron (Transilvania University; Siemens SRL, Romania), and Răzvan Andonie (Central Washington University, USA)</i>	
Accelerating Convolutional Neural Network Pruning via Spatial Aura Entropy	286
<i>Bogdan Musat (Transilvania University of Brasov, Romania) and Razvan Andonie (Central Washington University Ellensburg, USA; Transilvania University of Brasov, Romania)</i>	
Lossless Interpretable Glyphs for Visual Knowledge Discovery in High-Dimensional Data	292
<i>Nicholas Lee Cutlip (Central Washington University, USA) and Boris Kovalerchuk (Central Washington University, USA)</i>	
Principal Components in General Line Coordinates for Visualization and Machine Learning ...	300
<i>Boris Kovalerchuk (Central Washington University, USA) and Brent D. Fegley (Aptima, Inc., USA)</i>	
General Line Coordinates in 3D	308
<i>Joshua Martinez (University of Central Washington, United States) and Boris Kovalerchuk (University of Central Washington, United States)</i>	
No-Code Platform for Visual Knowledge Discovering in General Line Coordinates: DV 2.0	316
<i>Lincoln Huber (Central Washington University, United States) and Boris Kovalerchuk (Central Washington University, United States)</i>	

Visual Knowledge Discovery from Public Transit Performance Data	323
<i>Carson K. Leung (University of Manitoba, Canada), Mohammadafaz V. Munshi (University of Manitoba, Canada), Vrushil Kiritkumar Patel (University of Manitoba, Canada), Nhu Minh Ngoc Pham (University of Manitoba, Canada), and Yixi Wu (University of Manitoba, Canada)</i>	
Responsible Artificial Intelligence and Bias Mitigation in Deep Learning Systems	329
<i>Marina L. Gavrilova (University of Calgary, Canada)</i>	

4. Visualization

A Maritime Situational Awareness Framework Using Dynamic 3D Reconstruction in Real-Time	334
<i>Felix Sattler (German Aerospace Center (DLR), Germany), Sarah Barnes (German Aerospace Center (DLR), Germany), and Maurice Stephan (German Aerospace Center (DLR), Germany)</i>	
ARWithDistance: Distance Awareness in Off-Screen Visualization Techniques for AR Applications	340
<i>Ana Paula Afonso (LASIGE, Departamento de Informática, Faculdade de Ciências, Universidade de Lisboa, Portugal), Maria Beatriz Carmo (LASIGE, Departamento de Informática, Faculdade de Ciências, Universidade de Lisboa, Portugal), Pedro Costa (LASIGE, Departamento de Informática, Faculdade de Ciências, Universidade de Lisboa, Portugal), and Tiago Pereira (LASIGE, Departamento de Informática, Faculdade de Ciências, Universidade de Lisboa, Portugal)</i>	
Visualization of Swiping Motion of Competitive Karuta Using 3D Bone Display	346
<i>Risa Kitagawa (Ochanomizu University, Japan) and Takayuki Itoh (Ochanomizu University, Japan)</i>	
Constructing a Cross-Disciplinary Idea Convergence System Using AIGC: A Case Study of Engineering and Design	352
<i>Jia-Rong Li (National Yunlin University of Science and Technology, Taiwan), Hsin-Yi Huang (National Yunlin University of Science and Technology, Taiwan), Teng-Wen Chang (National Yunlin University of Science and Technology, Taiwan), Chi-Chi Shih (National Yunlin University of Science and Technology, Taiwan), and Hsiang-Ting Chien (National Yunlin University of Science and Technology, Taiwan)</i>	
Information Visualization and Artworks: From GPS to Point Cloud	358
<i>Solvita Zarina (University of Latvia, Latvia)</i>	
Visualization of the Repetitive Practice of Dance Motion: Case Study with Multiple Genres of Dance	362
<i>Mami Kawanishi (Ochanomizu University, Japan), Shuhei Tsuchida (Ochanomizu University, Japan), and Takayuki Itoh (Ochanomizu University, Japan)</i>	
Discussion on Preliminary Digital Assistance Mode in the Empathy Game Process of SPRINT Warm-up	368
<i>Teng-Wen Chang (National Yunlin University of Science and Technology, Taiwan(ROC)), Chi-Chi Shih (National Yunlin University of Science and Technology, Taiwan(ROC)), Hsiang-Ting Chien (National Yunlin University of Science and Technology, Taiwan(ROC)), Shih-Ting Tsai (National Yunlin University of Science and Technology, Taiwan(ROC)), Hsu-Feng Chang (National Yunlin University of Science and Technology, Taiwan(ROC)), and He-Chin Chen (National Yunlin University of Science and Technology, Taiwan(ROC))</i>	

A Review of Point Sets Parameterization Methods for Curve Fitting	374
<i>Zaiping Zhu (Bournemouth University, UK), Lihua You (Bournemouth University, UK), and Jianjun Zhang (Bournemouth University, UK)</i>	

5. AIMH – Visualization and Artificial Intelligence for Medicine, Healthcare, and Social Good

A REST API Based on Machine Learning to Predict Survival Using Categorical Features	378
<i>Covadonga Díez-Sanmartín (Complutense University of Madrid) and Antonio Sarasa-Cabezuelo (Complutense University of Madrid)</i>	
SIDVis: Designing Visual Interactive System for Analyzing Suicide Ideation Detection	384
<i>Md Rafiqul Islam (Australian Institute of Higher Education, Australia), Md. Kowsar Hossain Sakib (Charles Sturt University, Manna Institute, Australia), Anwaar Ulhaq (Charles Sturt University, Manna Institute, Australia), Shanjita Akter (Taylors University, Malaysia), Jianlong Zhou (Data Science Institute (DSI), University of Technology Sydney, Australia), and David Asirvatham (Taylors University, Malaysia)</i>	
LifeTrack: Decades of EHR Data in a Single View	390
<i>Harri Siirtola (TAUCHI Research Center, ITC Faculty, Tampere University, Finland), Roope Raisamo (TAUCHI Research Center, ITC Faculty, Tampere University, Finland), Mary Pat Reeve (Finnish Institute for Molecular Medicine (FIMM), Finland), Javier Gracia-Tabuenca (Finnish Institute for Molecular Medicine (FIMM), Finland), Vincent Llorens (Finnish Institute for Molecular Medicine (FIMM), Finland), and Shanmukha Sampath Padmanabhuni (Finnish Institute for Molecular Medicine (FIMM), Finland)</i>	
Data Visualisation on a Mobile App for Real-Time Mental Health Monitoring	396
<i>Nuno Gomes (Lisbon School of Engineering (ISEL) & NOVA LINCS, NOVA School of Science and Technology, Portugal), Matilde Pato (Lisbon School of Engineering (ISEL) & LASIGE, FCUL, Universidade de Lisboa, Portugal), André Lourenço (Lisbon School of Engineering (ISEL) & NOVA LINCS, NOVA School of Science and Technology, Portugal), Renato Marcelo (Lisbon School of Engineering (ISEL), Portugal), Pedro Santos (Lisbon School of Engineering (ISEL) & NOVA LINCS, NOVA School of Science and Technology, Portugal), and Nuno Datia (Lisbon School of Engineering (ISEL) & NOVA LINCS, NOVA School of Science and Technology, Portugal)</i>	
BookMate: Leveraging Deep Learning to Empower Caregivers of People with ASD in Generation of Social Stories	403
<i>Deepshikha Bhati (Kent State University, USA), Angela Guercio (Kent State University, USA), Veronica Rossano (University of Bari, Italy), and Rita Francese (University of Salerno, Italy)</i>	
Knowledge-Grounded Dialogue Generation for Medical Conversations: A Survey	409
<i>Xiaoxiao Liu (Bournemouth University, UK), Jian Chang (Bournemouth University, UK), and Jian Jun Zhang (Bournemouth University, UK)</i>	

6. BuiltIV

Visualisation in Built and Rural Environment

Representation of Urban Geometry Evolution Through Space-Time Cube	414
<i>C. Gautier (Univ Lyon, UCBL, CNRS, INSA Lyon, LIRIS, France), J. Delanoy (Univ Lyon, INSA Lyon, CNRS, UCBL, LIRIS, France), and G. Gesquiere (Univ Lyon, Univ Lyon 2, CNRS, INSA Lyon, UCBL, LIRIS, France)</i>	
Development Framework for Web-Based VR Tours and Its Examples	420
<i>Yoshihiro Okada (Kyushu University, Japan), Kosuke Kaneko (Kyushu University, Japan), and Wei Shi (Kyushu University, Japan)</i>	
Potential of Visualization to Explain Quantum Algorithms	426
<i>Mariko Sasakura (Okayama University, Japan) and Kenichi Iwata (Tottori University, Japan)</i>	
Author Index	429