Table of Contents

Preface VII

Foreword IX

Introduction XI

Resilient Landscape, Global Change and Hazard Response 1

Sven Stremke, Dirk Oudes, Paolo Picchi
Revealing the Power of Landscape in Mitigating the Climate Crisis 2

Adriana Aguirre Such, Mathilde Marengo, Iacopo Neri
Dynamic Mapping Based on Multi-functional Land Values, Measuring Land Use Resilience for Climate Adaptive Spatial Planning 13

Artan Hysa, Roland Löwe, Juergen Geist
A Comparative Overview of the Transversal Connectivity of Natural Landscape Mosaics to Freshwaters in the Metropolitan Areas of Berlin, London, & Paris 23

Alexis Arias, Kana Nagai, Yihe Chen
The Driverless City: The Urban Possibilities of Autonomous Vehicles and Navigation Safety 31

John Hobbie, Matthias Pietsch, Matthias Henning
Methodology for Selecting Sites and Creating Urban Cool Islands (UCIs) in Cities 39

Hans-Georg Schwarz-v.Raumer, Till Jaworski, Ruben Schenk, Karsten Vennemann
Integration of Urban Green and Blue Infrastructure by Means of an Interactive and Geo-spatial Webmap-Tool 48

Zhongzhe Shen, Mintai Kim
Longitudinal Water Pollution Monitoring and Retention Pond Capacity Assessment Using Smart Devices 57

Travis Flohr, Mehdi Heris, Rosy George, Andrea Avila
Investigating New York City's Cool Roof Program Implementation Using Remote Sensing Through an Environmental Justice Lens 65

Timothy Murtha, Whittaker Schroder, Charles Golden, Kelsey Herndon, Robert Griffin
Does the Past Influence the Present or the Future? Deep Time, Land Use, and Remote Sensing in Southern Mexico 75

Aya ElMeligy
Environmental Impact Assessment Software for Constructed Wetland Parks' Sustainability Performance 84

Luwei Wang, Timothy Murtha, Emre Tepe
Exploring Suitable Indicators for Residential Development and Resilient Landscape: A Case Study in Orlando Metropolitan Region 92

Alejandra Narváez Vallejo, Hans-Georg Schwarz-v.Raumer
Do Green Infrastructure Types Represent Land Surface Temperature? A Case Study of Stuttgart 101

Zita Szabó, Guifang Wang, Ágnes Sallay
Estimating Solar Energy Potential of Hungary Based on Raster Maps 112

Courtney Long, Bailey Hanson, Christopher J. Seeger
Using Spatial Technology to Support Community Resilience for Landscape and Food Systems in the U.S. Virgin Islands 124

Chiara Chioni, Sara Favargiotti
Digital Representation of Marginal Landscapes: 'Agile' 3D Modeling Workflows for an Italian Inner Valley 134

Yu Huiping, Huang Ruonan, Zhang Jiaqi, Yuan Yangyang
Calculation Method for Carbon Sequestration of Urban Green Space Vegetation – Based on Point Cloud Technology 142

Landscape and Building Information Modeling (LIM + BIM) and other Standardizations in Digital Landscape Architecture 159

Johannes Gnädinger
Standardization of Landscape and Environmental Planning for 3D/4D BIM and LIM Projects 160

Xudong Zhang, Ervine Shengwei Lin, Jinda Qi, Puay Yok Tan
Linking Image-based Metrics to 3D Model-based Metrics for Assessment of Visual Landscape Quality 167

Hadi Yazdi, Qiguan Shu, Ferdinand Ludwig
A Target-driven Tree Planting and Maintenance Approach for Next Generation Urban Green Infrastructure (UGI) 178

Phillip Fernberg, Benjamin H. George, Brent Chamberlain
Producing 2D Asset Libraries with AI-powered Image Generators 186

Nathan Fox, Mark Lidquist, Derek Van Berkel, Ramiro Serrano Vergel
A Collaborative Augmented Reality Decision Support System for Crowdsourcing Urban Designs 195

Mingjie He, Bing Wu, Xiaoguang Liu
Construction of Pocket Park Network Systems in Urban Built-Up Areas: A Case Study of Harbin City 203

David Tulloch
Experiences with Volunteered Geographic Information (VGI) on a Small Street Tree Inventory 214

Maximilian Schob, Luis Callejas
Landscapes between Signal and Data: Formal Identification and Analysis of Forest Clearings in Oslo through Lidar Data 221

James F. Palmer
Three Ways to Assess Reliability in Professional Visual Impact Assessment 236

Madeline Brown, Changjie Chen, Krishnapriya Thirumala, Vivian Chenxue Lu, Luwei Wang, Subhadeep Das, Juliana Woods
Visualizing and Tagging Trail Experiences 245

Zeynep Karaman, Ikhwan Kim
Virtual Landscape Design Patterns in Albion Online 253

Algorithmic Design and Analysis Landscapes 263

Zihao Zhang, Susan L. Epstein, Casey Breen, Sophia Xia, Zhigang Zhu, Christian Volkmann
Robots in the Garden: Artificial Intelligence and Adaptive Landscapes 264

Karen Lee Bar-Sinai, Tom Shaked, Elif Simge Fettahoglu, Jochen Krimm, Ekaterina Pestriakova, Liubov Kniazeva, Sharon Friedberg, Benedikt Boucsein
Toward Acoustic Landscapes: A Digital Design Workflow for Embedding Noise Reduction in Ground-forming 273

James Melsom, Ilmar Hurkxkens
Eroding Terrains: Developing Computational Design Tools for Interactive Site Erosion 284

Meng Xu, Pia Fricker
Urban Agriculture: Climate-Responsive Design Strategies for Blue Infrastructure in the Context of Singapore 292

Jace Armstrong, Salvador Lindquist, Sarah Cope
Parametric Planting Design: Algorithmic Methods for Resilient Communities 301

Benjamin Hackenberger, Sarah Cowles, Giorgi Nishnianidze
A Parametric Design Methodology for a Novel Ecosystem 310

Brent Chamberlain, Scott Johnson, Charisse Spencer, David Evans, Phillip Fernberg, Emily Tighe, Morgan LaFavers, Sarah Creem-Regehr, Jeanine Stefanucci
Visualizing and Clustering Eye Tracking within 3D Virtual Environments 318

Phillip Zawarus
A Mixed Reality Experience: Advancing Design Decision-Making with Performance Metrics Through Augmented Reality and Physical Media 326

Howard Hahn, Yingyi Zhong
Exploring Less Geometric Landfill Slopes through Parametric Digital Modelling 334

Motahareh Abrishami, Brent Chamberlain
Comparing Transportation Metrics to Measure Accessibility to Community Amenities 342

Geodesign Approaches, Technologies, and Case Studies 351

Drini Berati, Matthias Pietsch, Matthias Henning
Assessment of Ecosystem Service Urban Recreation – A Case Study of Leipzig, Germany 352

Xiao Han, Zhe Li, Shuang Wu, Mingchen Xu
Landscape Performance Related Factor Correlations in Small Public Spaces: Structural Modeling Applied to Nanjing Subway Entrances 360

Céline Schmidt-Hamburger, Peter Zeile
Walking in the City: An Experimental Pedestrian Stress Test for Marienplatz in Stuttgart, Germany 372

Peter Zeile, Nina Haug, Céline Schmidt-Hamburger, Nicolaj Motzer, Martin Moser, Bernd Resch
Emotion Sensing for (E-)Bicycle Safety and Mobility Comfort 381

Jaymes Progar
Geodesign for Trail-Based Tourism: A Regional Case Study in Post-Industrial Pennsylvania 390

Priscilla Sofia Dastoli, Francesco Scorza
Geodesign in the Strategic Planning Track: A Participatory Itinerary 400

Inkoo Kang
Application of Geographic Information System (GIS) in Digitizing Hand-Drawn Mental Maps: An Exploratory Study 409

Sándor Jombach, Laura Üsztöke, Yaseen N. Hassan, Du Chenyu
Green Space Intensity, Land Surface Temperature and Green Canopy Top Mapping: A Case Study in the Suburban Settlement of Törökbálint, Hungary 417

UAV Imagery and Remote Sensing and Digital Fabrication in Landscape Architecture 427

Maximilian Schob, Jörg Rekittke
Neural Radiance Fields for Landscape Architecture 428

Iacopo Neri
Expanding Digital Design Workflows with Geospatial Analytics: Linking Grasshopper3D with Google Earth Engine 443

Josafat-Mattias Burmeister, Rico Richter, Jürgen Döllner
Concepts and Techniques for Large-Scale Mapping of Urban Vegetation Using Mobile Mapping Point Clouds and Deep Learning 451

Qiwei Song, Dan Luo, Meikang Li, Pixin Gong, Waishan Qiu, Wenjing Li
The Influence of Perceived Landscape Qualities on Economic Vitality: A Case Study of a Retail Coffee Chain 463

Aidan Ackerman, Guohang Tian, Yang Liu
LiDAR-Based Digital Modeling and Comparative Analysis of Urban Street Tree Form and Dimensions 476

Brendan Harmon, Hye Yeon Nam
Ecological Robotics 486

Visualization, Animation and Mixed Reality Landscapes (VR, AR) 493

Loviisa Luoma, Pia Fricker, Sebastian Schlecht
Design with Sound: The Relevance of Sound in VR as an Immersive Design Tool for Landscape Architecture 494

Abdulmueen Bogis, Mintai Kim
A Discrete Choice Experiment to Elicit People's Preferences for Semi-Arid Riparian Corridors: A Multinomial Logit Model 502

David Evans, Scott Johnson, Brent Chamberlain
Transferring Spatial Data from Unity to ArcGIS 515

Ulrike Wissen Hayek, Fabian Gutscher, Philipp Braune, Nuno Dantas, Dano Roost, Jennifer Schürch, Manuel Antonetti, Adrienne Grêt-Regamey, Michael Doering
Sensing River and Floodplain Biodiversity – Developing a Prototype 523

Mengting Ge, Yang Huang, Mintai Kim
How Virtual Reality Renderings Impact Scale and Distance Perception Compared to Traditional Representation 533

Marika Li, Nadia Amoroso
An Early Look at Applications for Artificial Intelligence Visualization Software in Landscape Architecture 543

Peter Stempel, Ellie Nasr-Azadani, Annette Grilli, Stephan Grilli, Elin Shuh, Felix Groetsch, Isaac Ginis, Deborah Crowley, J. P. Walsh, Isabel Whaling, Christopher Damon, Roland Duhaime, Pam Rubinoff, Catherine Schmitt
3D Morphodynamic Visualizations of Storm Impacts for Decision Support 554

Peter Stempel, Austin Becker, Ellie Nasr-Azadani
Expert Perceptions of Uncertainty Communication in 3D Visualizations of Coastal Hazards 564

Teaching and Hybridization in Digital Landscape Architecture 575

Pia Fricker, Ulrike Wissen Hayek, Rosalea Monacella
Digital Landscape Architecture Education – Where Do We Stand and Where Should We Go? 576

Daniel Roehr
"Open Access" Climate Resilience Tools for Landscape Architects 585

Peter Petschek
BIM Education in Landscape Architecture: The Rapperswil Model 588

Olaf Schroth
Geodesign as Online Teaching Method – Lessons from a Multiple Case Study 598

Kirby Barrett
Enhancing Technical Grading Education: Finding the Right Tools for the Job 608

Afshin Ashari, Sean Kelly
Future Resilient Landscape [Architects] 618

Haoxiang Zhang, Steffen Nijhuis, Caroline Newton
Uncovering the Visibility of Blue Spaces: Design-oriented Methods for Analysing Water Elements and Maximizing Their Potential 628

Acknowledgements 639

Early Conference Announcement & Call for Papers for the International Conference "Digital Landscape Architecture DLA 2024" 647