Editorial: Digital Landscape Architecture – 2018

Just two short decades ago – in 1998 – Google was just freshly incorporated; Apple was just on the verge of introducing the iMac, and would not introduce the iPhone until nearly another decade later; most mobile phones were Nokias, and none had cameras, or could surf the web, or send email; augmented- and virtual- reality were still science-fiction or exotic research technology; consumers did not have drones, wearable computers, or electric cars; no school of landscape architecture had a laser cutter, 3D printer, or CNC router; the term "big data" was just beginning to be used in select high-tech circles; "climate change" was not at the top of many agendas; the term "geodesign" would not be coined for another decade either; and there had not yet been a single Digital Landscape Architecture (DLA) conference!

This year, on the occasion of the 19th annual International Conference on Information Technology in Landscape Architecture (DLA), held at the Hochschule Weihenstephan-Triesdorf/ University of Applied Sciences in Freising near Munich, the conference theme is "Landscape Architecture in a Big Data world". The collected papers from the conference, from 44 authors from 17 countries, cover topics including "geodesign for climate change", "mobile devices", "algorithmic landscapes", "augmented and virtual reality", "building information modelling", "drone-based sensors", "cloud computing", "the internet-of-things", "point clouds", "digital 3d scanning and fabrication", "social media", and "teaching digital landscape architecture". Arguably, none except the last of these would have made much sense a mere twenty years ago; today, some are commonplace, and some are pressing. And all are impacting conception, design, and construction of landscapes, at many scales.

It is a truism that the pace of technological, environmental, and social change is accelerating in a logarithmic fashion – these times have been called the "exponential Anthropocene". For students, practitioners, academics, historians and researchers within and around the disciplines of landscape architecture this is no less true. These changes are harder to detect through the lens of many other establishment and industry publications – where the preoccupation, perhaps quite rightly, is with the timeless qualities of landscape, urbanism, qualities of life, environmental and visual impacts, and the primary palette of vegetation, landform, and paving and building materials; and technology is seen primarily as an enabling tool rather than a driving force, or a subject worthy of study in itself. For the many authors in this volume, and attendees at the DLA conference, the timeless qualities of good landscape design are not dismissed or ignored; but our focus is squarely on the unique power and potentials, and occasional pitfalls, of digital, algorithmic, and computational approaches, data of all sizes, big and small, and data science, along with other related and emergent sciences, media, materials, and processes. The papers in this volume range from detailed field reports and comparative studies to theoretical speculation and critical commentary, in which the multi-faceted impacts of the exponential explosion of technologies on the discipline of landscape architecture are chronicled, illuminated, and analysed.

The emphasis in this issue on "Big Data" is a sure sign of the times. Any digital approach naturally depends upon, and inevitably also generates, data in many forms. Data science is said to be currently among the fastest growing field of study in universities world-wide; due in part to the overwhelming amounts of data from the explosion of smart-phone technology, as well as from such data streams as earth-sensing satellites, telemetry from self-driving cars, sensor arrays embedded in various 'building automation' and 'smart-city' systems, and the

proliferation of measuring devices occasioned by the global blossoming of the 'Internet of Things'. Together with the demand for 'data-driven', or 'evidence-based', design and decision-making in all fields from commercial marketing to agricultural-engineering, climate-monitoring, and public health policy research, and new advances in 'machine-learning' and artificial intelligence (AI), this constellation of issues is rich with promise for landscape architects concerned with environmental impacts, social behaviours, and interconnected urban- and environmental-systems, and for a future of 'smart landscapes' no less informed than the 'smart buildings' and 'smart cities' already dotting the landscape. Perhaps we are on the way to transforming these 'big data' into 'big knowledge', for humankind's benefit …

These topics necessarily extend beyond traditional boundaries of landscape architecture (such as they may be!) and require interdisciplinary work and cooperation, as well as new vocabularies, and new techniques, and new understandings of "landscape" as well as of "architecture", "environment", etc. These new understandings and processes, including mechanical, cognitive, computational, social, and theoretical, among others, are both grounded in familiar experiences and values, and motivated by new, emergent, and tantalizing prospects. The promise of an expanded view of the domain of landscape architecture – in which, for example, machine learning fuelled by big data and multi-scalar sensing of the dynamic global environment, in harmony with AI and human designers, and involved and informed citizens, using the best available technological media, techniques, and equipment, is used to devise ways to tackle the grand challenges of planetary survival, while also celebrating the greatest of human achievements and reinforcing human values including the spiritual and the aesthetic – is explored in many (albeit often embryonic) forms, here in these pages.

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