Onsite Analysis -
Developing a flexible software field-kit for landscape architecture and spatial design

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What is the role of the site visit in Landscape Architecture?

Keywords:
Onsite computational design; landscape analysis; landscape sensing; realtime analysis; landscape tool development; hardware/software synthesis
Key field-kit potentials

- Assisting scanning/sensing
- UAV control
- Live sensor control/feedback
- Mining geolocated data
- open source/proprietary data
- creating site-relevant datasets
- Augmented site perception
- On-site analysis

The key grasshopper analysis definitions have been simplified into 3 main families, that are nested together.
Site accessibility.

### Physical access
- Terrain
- Scale
- Surface - vegetation/water/soil
- Distance
- Weather fluctuations
- Number of sites
- Repetition/variation

### Access to resources/phenomena
- Monetary cost
- Data availability
- Security/property
- Timeframe
- Cultural processes
- Natural phenomena
- Sensitivity

Efficiency and accuracy in on-site analyses
Valldaura, Barcelona, Spain - accessibility

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41.449481°, 2.133784°
72 hectares
1.2 x 0.6 km
Distributed sites, agricultural remnants
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Valldaura, Barcelona - Workshop Site - circa. 1900 photo, 2016 photo, 2016 pointcloud
Grasshopper UAV on-site path generation (BCN) + tablet based remote cloud photogrammetry
Optimised Grasshopper scripts running on a 7inch affordable tablet - Solar exposure + vegetation distribution
Lake Zurich, Wollisfofen - accessibility

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47.355762°, 8.536272°
110 hectares
2.2 x 0.5 km
Infrastructure, public and private areas
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Open data Zurich - tree and streetlamp database - standardised xml format
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Open data Zurich - tree data optimised for the site - rainfall data and slope analysis
Onsite Analysis

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Zurich lake edge - student sensor distribution - soil humidity and results distribution - published to iris (webGL)
Case Study Data - Equipment Specifications

**Tablet**
- Quad-Core-Processor Z3735G Intel
- 7-inch 1024 x 600 display
- 16-144 GB HDD
- Dual camera
- bluetooth / wifi
- Micro USB
- Windows 8
- Rhino 3D 5 / Grasshopper / Plugins
- Python 2.7 / Microsoft Visual Studio
- Arduino / Processing / Java

**UAV**
- Quadcopter + fixed wing (custom build)
- Sony RX100 camera

**TLS**
- Riegl VZ-1000 1.5km range
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Areas for optimisation / development

Portability - unobtrusiveness

Simplicity of use - enquiry

System cost - multiplication

Personalisation - method

Augmentation and flexibility of site enquiry, synthesising existing site visit tools, processes and personal investigation and intuition
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