

Image Cities Circus

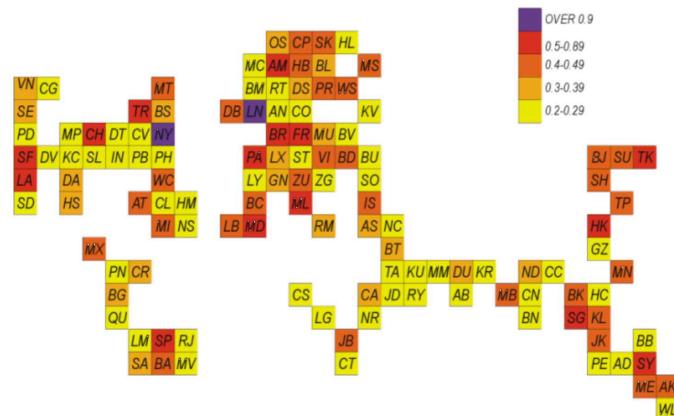
[Mobility, Technology and the Spectacle of Exceptionalism]

The city is no longer one entity, but one in a chain of many, and all the distances in between. This has immense consequences for architecture and how it imagines the city and its urban futures... A migratory architecture or rather an architecture for these migratory times, would require that architectural intelligence imagine the city not as a morphological, material arrangement of inside and outside, public and private, but as a thicket of circuits and routes, of delays and vast expanses of space between, of several places simultaneously. It would follow, track, record and map these often-invisible flows and then put them to work to imagine and make the city differently.

Lindsay Bremner, *"Imagining the City"*, *Writing the City Into Being 1998 - 2008*



l. *The Refusal of Time*, William Kentridge, dOCUMENTA (13), Kassel, 2012



r. Global Connectivity of Major Nodes in the World City Network

Condition 1

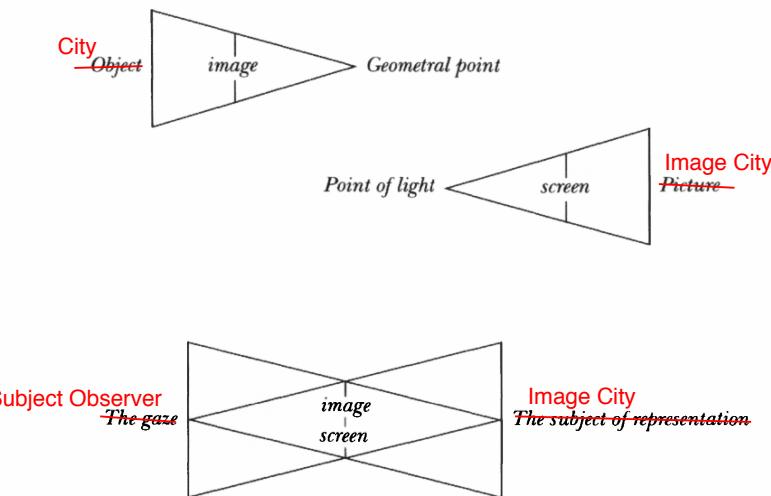
In the age of globalization the image of the City exists in the imaginary of its media images proliferated by the Internet, global media conglomerates, and social media. Moreover, the influences of globalization operate not only upon urban economic restructuring but also upon the symbolic production of the city image. In line with globalization and urban entrepreneurialism, the meanings of cultural elements are produced and circulated to symbolically represent values and the identity of the city itself. No longer is the image of the city defined by its environment --- its physical systems, ecologies, and constructed settings for activities and events. But rather, the image of the city is defined by its "image dimension"¹ and its ability to construct itself as a brand in order to seek international attention and to market itself to global investment. The image dimension is neither spatial nor experiential but it is predicated upon the aesthetic aspect of a symbolic representation of the city that flows within the global streams of information, media, and data.

¹ See the World Bank's definition of City Brand. <http://documents.worldbank.org/curated/en/2012/12/18257092/city-brand>

In the history of cities prior to twentieth century globalism, the image of the city was defined by the image of the environment --- the experience of walking in the city and the perception of moving elements; the structure and legibility of the city defined by urban morphologies, recurring relationships and archetypes, scale, time and complexity; and its imageability defined by the reciprocal relationships between observer and the city that enabled the observer to construct his identity and meaning based upon experience, memory and culture.

The physical environment and its imageability were thought to be the consequence of the architecture of the city's monuments, the nature of its public spaces, its infrastructure, the expressionisms of technology evidenced in its fortifications, bridges, and evolutionary building tectonics, and what the city manufactured --- i.e. its cultural production. In the age of globalization, cultural production is superseded by image production and media consumption. Image production fabricates cultural production within the milieu of symbolic representations that flatten meaning and reduce complexities to simplistic icons.

That Cape Town perceives itself as more of a world city than an African city signifies the ongoing myth of South African exceptionalism that emerged during colonial South African and extended even through the era of Apartheid in which South Africa viewed itself as a “white” country that by circumstance happened to be on the continent of Africa. Furthermore, the persistence of the myth was informed by comparisons with other post-colonial African countries with respect to governance, infrastructure and development even into the post-apartheid era. This image of exceptionalism is also the internalized reflected image of Cape Town produced due to the international attention the city received in recent years, its geography as an international tourist destination, and the global investments as the igniting forces of globalization transition from China and Southeast Asia, to Brazil and South America, and now to the African continent.



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² See discussion of subject / object relationships developed in neo-conceptual photography with regards to Lacan's Mirror Stage in Foster, Hal. "Obscene, Abject, Traumatic." *October*. Vol. 78 (Autumn, 1996), pp. 106-124.

Yet, Cape Town (33.9253° S, 18.4239° E) is a city in the space of flows that until near the end of the twentieth century was a place of political and cultural disjunction, denial, suppression and --- global boycott. Cape Town's post-Apartheid landscape is a space of extreme disparities, contradictions, and contested terrains formulating the synaptic clefts within the city's rapid adaptation to post-Apartheid globalization and the "space of flows" of a networked society. Potent evidence of these clefts are demonstrated by the fact that South Africa has the highest mobile phone penetration rate in the world having broken the 100% barrier in 2008 and a total market reach of 44.5 million customers. This statistic exists despite the fact that broad areas of the "Flats" (area of former townships and informal settlements) and other areas lack landlines, adequate electric power service, water supply and sewer service.

The heterogeneous context of sets of relations and converging territories of present day Cape Town is informed by the legacy of racial separation that was used by the government to promote physical order, health, social stability and control. In Cape Town as in Johannesburg, Apartheid brought together the discursive networks of government, urban planning, public health and urban administration.... Modern town planning principles meant to maintain racial separation were overlaid on the geography and natural features of the Cape together with the location of industrial zones and vacant lands used to create a spatially discontinuous city and to buffer black from white, rich from poor, urban from suburban and urban from township settlements.

The irony of liberation in Cape Town is that the seduction of the city's geography and its physical beauty continues to mask the horrors of racial separation and inequality which are not just a legacy of Apartheid but crucial to the production of the city's masquerade. Yet, in this condition, liberated human ecologies informed by technology, information, globalization and new kinds of flows confront the contested landscape to create chimera-like topologies and rapid responses to social, cultural, political, and environmental situations.

Hence, what is the city image that is globally projected and reflected back to itself and how is this condition inclusive as it is exclusive? What are the contradistinctions, phantasms, and surrealities of these simultaneities? What is the potential for the virtual network overlay of the city's "image dimension" and its physical construct to result in a programmatic sleights-of-hand that give way to performance, event, disruption, and critique?

For architecture and urban redevelopment maintain their abilities to render complexities and multi-layered meanings within this reflexive and topological condition and to give agency to the diverse identities of this landscape is the opportunity to reconstruct a city of cultural production that will supersede its image.

Condition 2

The studio will use advanced computational methods and parametric modeling to research, analyze, and translate the reflexive flows and topological conditions image city Cape Town. The preliminary research will engage the new types of relations and exchanges via time-sharing social practices, social media, and social networks that collapse virtual topology upon urban topography and physical construct in order to allow for adaptive responses to create an increasingly complex heterogeneous and mutable landscape.

Data mining tools and parametric modelling research methods will be introduced in a series of workshops during the first four weeks of the studio. These topological methods developed in Rhino with

Grasshopper* will allow the virtual network overlay of the city's image dimension be studied in magnitude from the global (macro) to the local (meso) to the site (micro). The studio will rely on tracking flows of information and migratory flows of trade in social media feeds, census tracking, and other relevant resources.

Condition 3

The studio will design a project for a migratory architecture --- Circus--- in the city of Cape Town. The history of the modern circus dates to the 18th century and the early circus included extraordinary displays of power of nature and performance in permanent structures intended for amusement and distraction during the Industrial Revolution in England and Belle Epoque in Paris (1871 – 1914). The modern circus later developed as a series of itinerant events and performances that include the fanciful as well as the phantasmagoric. The circus and circus performers provided a distraction from and disruption to the *everyday life* of the modern city where by sleight-of-hand and contortion created a dual reality within the space of performance. Shortly following the Russian revolution in 1917, Lenin nationalized the Russian circuses in order to become “the people’s art form” --- egalitarian regardless of class, education, language or race. In the lineage of architectural history, the spectacle and the circus were explorations of Cedric Price’s *Fun Palace* (1964); *Archigram’s Ideas Circus* (1969) and *Instant City* (1969); and an on-going interest of Charles and Ray Eames.

The three attributes of the circus --- power, diversion, and aesthetics --- were significant to the performance of Apartheid in South Africa and continue to be performed in the post-Apartheid heterotopic landscape of Cape Town.

TRAVEL

The studio will travel to Johannesburg and Cape Town, South Africa from March 7 through March 15, 2015 for fieldwork and site reconnaissance. The studio will have a mid-term review in Cape Town. International students should confirm travel and visa requirements as soon as possible.

WORKSHOP

A series of in studio workshops will be conducted during the first part of the course to introduce advanced computational tools and to refine parametric techniques using scripting, Rhino® and Grasshopper®. These workshops will be in coordination with the preliminary research section of the studio. The digital tools are here intended as an interactive mapping exercise that creates relationships between sets of data and information. The wide availability of data on different platforms makes a wide choice of sets of data available. The representation of the image city's virtual network overlay and its physical construct will be used to reveal analogies and synchronisms. More than an end in itself, new iterations of the network and its representation will serve as a base to keep exploring, both for the student alone and with others by serving as a tool for provocation and response. The goal of the workshops and the research is three-fold: 1.) to make the invisible visible; 2.) to evidence the counter-intuitive, and 3.) to assert the conjunctive relationships [...and therefore] between hypothesis, experiment and conclusion.

These digital tools provide an interactive mapping exercise that creates geometric relationships between sets of data and information. The wide availability of data on different platforms makes a wide choice of sets of data available, so it is important to find sets of data about the topics that fit into the following KEY criteria:

- ⊗ search for topics of inquiry that are quantifiable into data sets
- ⊗ select data sets that can be spatially or geographically located

- ⊗ select data sets that show change over time

The representation of these networks through data visualization and spatialization will be used to reveal continuities of global flows and discontinuities caused by ruptures/stoppages/redirections. The identification of new iterations of networks and the resulting representations of those networks will become vehicles for exploring the studio's theme and context. By visualizing hidden relationships and dynamics, this method of investigation will be useful over the course of the semester as the students as they develop their projects. The goal of the workshops and the research is three-fold: one, to make the invisible visible; two, to evidence the counter-intuitive, and three, to assert the conjunctive relationships between hypothesis, experiment, and conclusion.

Workshop program

Over the course of the first four weeks, students will learn how to research archival and live data through various platforms and data sources. This method of research—Data Spatialization—will show students how to access geometry through digital means. Understanding geometry as data is key to utilizing the information discovered through research phase of the design process. Conditional statements will be introduced and are important when comparing and sorting through our data sets. This will lead to understanding how mathematics is key to formulating the logic necessary to fully articulate and represent your hypothesis.

We will be utilizing census data as well as open source API's (Application Programming Interface) over the course of this semester in order to gain access to streaming social media and other data sources. An API is an interface between two software packages that facilitates their interaction. These interfaces consist of a set of rules and codes that allow various software platforms to communicate with each other. The purpose of the workshops is for students to gain an understanding of the workings behind these interfaces.

The studio will also introduce a live component to how data is collect so that we may use live feeds from social media platforms like Twitter® and Google Maps®. We will also use of Processing and custom components to gather streaming data from open source databases. Students should not be worried about learning how to program, templates and help will be provided. It is more important for students to explore and discover the potential of data so that it may be used productively in conjunction with Topological modeling, which presents of geometry as data.

Tutorials

Students are expected to complete a series of on-line tutorials that complement the workshop sessions. These tutorials have assignments that need to be completed as part of the studio's coursework.

Before the first week's tutorial, the following on-line tutorials and primers must be reviewed. Download and read Andy Payne, Grasshopper Primer: <http://www.liftarchitects.com/journal/2009/3/25/the-grasshopper-primer-second-edition.html> Grasshopper Primer mandatory Chapters:

- 1 Getting Started
- 2 The Interface
- 3 Grasshopper Objects
- 4 Persistent Data Management
- 6 Data Stream Matching
- 8.1 Lists & Data Management
- 9 Vector Basics

Essential Mathematics for Computational Design is not required to review, but it is highly recommended:
<http://download.rhino3d.com/en/Rhino/4.0/EssentialMathematicsSecondEdition/>

Week 01 – What are Algorithms? How is Data Sketched?

The first workshop's tutorial reviews step-by-step the advanced principles at the core of parametrics and algorithmic computation. Advanced experimentation and exploration can be achieved quite easily as long as students know the foundations of any given piece of software. This tutorial starts with the core knowledge and works its way out to more complex tasks. The fundamentals surrounding this core knowledge are the use of arrays, lists or tables of raw data, coupled with mathematics. This tutorial will provide a deeper understanding of the architectural potential embedded in the framework of this software and the potential of mathematical operations that can be performed on this data. This tutorial will demonstrate:

- ⊗ how a something is quantified into data
- ⊗ how to mine the data for targeted information
- ⊗ how that new data is spatialized ⊗ how spatialized data is then geometrically mapped in space (scaled and given form)
- ⊗ how that data changes over time through the introduction of animation.

Week 02 – What are Data Sources and API's ? What are different examples of data sources?

Data sources can be dense as well as dynamic in terms of how it can reveal differences. Therefore it is important to know how to sort through and pinpoint relevant information that is useful in the research. This tutorial examines step-by-step an example of how to mine a data source and how to chart the data via the use of Excel. It will show how to cull data from external sources and how to save the data into .xml format. It will also demonstrate how to import that information into different programs.

This tutorial will also review of specific examples of data visualizations that utilize objects, arrays, and functions. We will also examine the correlation between data that has been gathered and how it gets visualized. This tutorial will consider how to utilize various media sources: Twitter®, Pachube, NYT, Facebook®, Flickr®, LastFM®, Pandora®, MXiT®, Google Weather, Yahoo® and other sources; Examples of mashups - Just Landed

Path and List Management and Custom Components

Data can be overwhelming when data sets expand into thousands and thousands of lines of information. Management of a list is critical in order to setup your definitions. Understanding how to match data structures will be important when working in with your research. The concept of clusters and groups will be introduced in order to simplify the sharing of definitions and data in the team.

Week 03 – How do you operate between Rhino® + Grasshopper® + more?

As tool for modeling, Rhino is the spatial field across which the data minded in Grasshopper has been distributed. Precise measurements correlated to the mined data are important for how data is geometricized and located in space. This is why it is critical to find data sources that are geo-tagged or correlated to a map or plan. Rhino and Grasshopper allow for users to jump in and out of automatic and manual generation of mapping. Students will need to switch between these two modes over the duration of the studios research and project. The hand of the designer that provides proportion, light, color, material, and form will always be necessary to intervene during the design process; in other words, the computer is merely a tool but you must guide its executions.

This tutorial explores the interoperability between software packages such as ArcGIS and 3ds Max. It will examine how to extract topological information from GIS and how to extract color and light information from 3ds Max.

For further guidance, follow the tutorials under the deployment category: <http://modelab.nu/?cat=5>

Week 04 – How do you export to other programs? How do you use animation?

Towards the end of any project there is always a need to work across various software programs. This tutorial will show how to bake definitions. It will also review how to export geometry and data to other programs such as 3ds Max, XML format and vector based graphics packages such as CAD and Illustrator. Because it can record incremental change from one data point to another, data sources reveal both the articulation of differences and their transformations over time. These shifts that are revealed through parametric modeling can also be animated. A section on animation and rendering of the exported geometry will also be introduced.

RECOMMENDED VISUAL STUDIES ELECTIVES

Search: Advanced Algorithm

Parametric Realizations

RESOURCES:**GEO Location**

Cape Town: 33.9253° S, 18.4239° E

SOUTH AFRICA / Cape Town DATA RESOURCES:

Create Tables of Census data:

<http://interactive.statssa.gov.za/superweb/login.do>

Download Timelines and Maps:

<http://www.statssa.gov.za/timeseriesdata/timeseriesdata.asp><https://www.capetown.gov.za/en/stats><https://www.capetown.gov.za/en/.../CityMapViewMain.aspx>www.giscapetown.com/GoogleEarth_GIS.htmlwww.planetgis.co.za/<http://www.gap.csir.co.za/download-maps-and-data>**LIVE DATA SOURCES:**

Twitter locate and track:

<http://www.studionu.net/ceed3/?p=2443><https://twitter.com/ - !/search-advanced http://twdocs.com/>Topsy: <http://topsy.com/> <http://www.studionu.net/ceed3/?p=741> <http://www.studionu.net/ceed3/?p=2443>

Flickr download and track :

<http://www.studionu.net/ceed3/?p=2443>**Mobile Telephones/Data and Computing**

Department of Science and Technology

<http://www.dst.gov.za/>

South Africa Broadcasting Corporation

<http://www.sabc.co.za/wps/portal/SABC/SABCHOME>

International Telecommunications Union

<http://www.itu.int/en/about/Pages/default.aspx>

Migration/Tourism

Department of Tourism Home

<http://www.tourism.gov.za/Pages/Home.aspx>

Institute for Transportation and Development Policy

<http://www.itdp.org/>

Sustainable Urban Transport Project

<http://www.sutp.org/>

African Center for Migration and Society

<http://www.migration.org.za/>**GENERAL AFRICA RESOURCES**

Center for African Studies – University of Cape Town

<http://www.africanstudies.uct.ac.za/about>

Basic guide to research on Africa at Columbia University

<http://www.columbia.edu/cu/lweb/indiv/africa/joebib.html>

Animated Atlas of African History

<http://www.brown.edu/Research/AAAH/map.htm>

Maps of Africa

<http://www.columbia.edu/cu/lweb/indiv/africa/cuvl/maps.html>

CU African Studies Internet Resources

<http://www.columbia.edu/cu/lweb/indiv/africa/cuvl/index.html>

CU International Data Sets

<http://www.columbia.edu/cu/lweb/indiv/dssc/eds/international.html>

South African Development Community:

<http://www.sadc.int/about-sadc/overview/sadc-facts-figures/>

The New Partnership for Africa's Development (NEPAD).

<http://www.nepad.org/>

South Africa The Good News

http://www.sagoodnews.co.za/fast_facts_and_quick_stats/index.html

Transformation (academic journal about development in South Africa)

<http://www.transformation.ukzn.ac.za/index.php/transformation>

Organization for Economic Cooperation and Development

<http://www.oecd.org/southafrica/><http://www.oecd.org/statistics/>

Urban Africa News

<http://urbanafrica.net/countries/south-africa>

CU African Studies: South Africa

<http://www.columbia.edu/cu/lweb/indiv/africa/cuvl/SAfr.html>

World Bank South Africa

<http://web.worldbank.org/>**MAPPING AND DATA RESOURCES**

African Marine Atlas

<http://iodeweb2.vliz.be/omap/OMAP/index.htm>

Socio-Economic Data and Applications Center: Gridded Population of the World

<http://sedac.ciesin.columbia.edu/gpw/global.jsp>

United Nations Environment Programme: African Datasets

<http://geodata.grid.unep.ch/results.php>

Global Land Cover Facility: Satelite photography

<http://glcf.umiacs.umd.edu/index.shtml>

CU GIS Data set collection

<http://www.columbia.edu/acis/eds/gis/spatialdata.html>

GIS Data Depot: South Africa Data Sets

<http://data.geocomm.com/catalog/SF/datalist.html>

Statistics of South Africa

<http://beta2.statssa.gov.za/>

Agricultural Geo-Referenced Information System: South Africa aerial photography and maps

<http://www.agis.agric.za/agisweb/agis.html>

Gauteng City-Region Observatory (GCRO)

<http://www.gcro.ac.za/>

African Cities Data

<http://data.worldbank.org/data-catalog/african-cities-diagnostics>

Socioeconomic Data and Applications Center

<http://sedac.ciesin.columbia.edu/data/sets/browse>

Open Data for Africa

<http://opendataforafrica.org/data#region=ZA>

World Bank

<http://maps.worldbank.org/afr/south-africa>

Geo-Information Society of South Africa

<http://www.gissa.org.za/> News

VISUALIZATION

<http://spatialanalysis.co.uk/>

<http://www.visualcomplexity.com/vc/>

<http://www.densitydesign.org/research/map-of-the-future/>

<http://www.densitydesign.org/research/greenpeace-oceans-campaign/>

<http://www.flickr.com/photos/densitydesign/sets/72157625279830385/>

<http://www.flickr.com/photos/densitydesign/sets/72157626120133870/>

<http://www.flickr.com/photos/densitydesign/3408703849/in/photostream/>

<http://www.flickr.com/photos/densitydesign/3409542518/> <http://www.golden-section-graphics.com/bse/>

<http://www.flickr.com/photos/tutu22/2506341206/in/photostream/> <http://rafaelmacho.com/> - sprint

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