AIR LUMNEZIA is the second in a series of speculative design studios examining the effects of artificial intelligence and automation on architecture and cities.

As the population has nearly doubled from the early 1950s to today, Switzerland has seen rapid urbanization at the expense of the natural landscape. In 2012, in an effort to plan the nation’s future territorial development, the federal government released the Spatial Concept Switzerland. A result of intense collaboration among all levels of authorities, the plan visualized the use of land as a collective spatial territory, making effective use of the built environment and preventing urbanity to sprawl into unspoiled natural areas. The official map of Spatial Concept Switzerland illustrated a series of interconnected cities and nodes with overlapping zones that create a sophisticated, holistic network.

In this studio, AIR LUMNEZIA, we will foreground an autonomous delivery system (drones) as a prototypical spatial planning tool, liberating the ground and using air space as an alternative zone for delivery networks. No longer relying on roads, railways, bridges, or tunnels, drones can fly freely in the air operating in a new spatial territory overlayed onto the map of Spatial Concept Switzerland.

The studio’s site will be Val Lumnezia, Valley of Light, one of the side valleys in the Surselva region of Graubünden, Switzerland. The valley is a popular tourist destination with beautiful scenic nature, and has about 2,000 inhabitants spread out in multiple villages and settlements. This unique remote context will serve as a case study for our investigations. Pivoting from the existing physical transportation networks, we will seek to minimize the extent of further land-based transport infrastructure and development in the region by considering autonomous drone technology in the air.

Our architectural project is the design of a series of autonomous delivery hubs, i.e. “drone ports,” as a proto-typological architecture, in the form of patentable inventions that can be instantiated not only for the alpine villages of Val Lumnezia, but also generalized for other villages in Switzerland, and thereby, acting in unison as a network, challenge the Spatial Concept Switzerland and offer debatable alternatives.
Methodologically, the studio will continue our interest in data-driven/parametric design. The studio will interpret the requirements of drone flight networks and noise contours, mine the genius loci of the specific sites, and draw inspiration from the formal language of architectural and infrastructural precedents (such as alpine avalanche constructs, viewing towers, pigeon cots, hidden bunkers). We will critically engage coding, geometric operations, and parametric tools (Grasshopper) as ways to think about typological invention in architecture.

The studio will co-operate with the Digital Architecture and Planning Department in Vienna, and contribute to the on-going conversation on how unpopulated architectures and automated infrastructures can co-exist and spatially function within civic society.

Projects on Territory, Chair Prof. Topalovic, ETHZ
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Val Lumnezia, Graubünden
Photo: Adrian Michael
Vrin, Lumnezia
Photo: Lucia Degonda
Kilsby, England

Railway tunnel ventilation shafts, 1838.
Engelberg, Obwalden
Herzog & de Meuron, *Titlis 3020 station*, 2018. Rendering
Julier Pass, Graubünden
Realp, Uri
*Bunker disguised as an alpine hut*, 1945. Photo: Christian Schwager
Switzerland
Swiss Army, Camouflaged bunker as a Swiss chalet, 1944. Section
Frederick Kim, *Study in intersected geometry of vernacular form*, 2019. Diagrams
Saflisch, Valais
Davos, Graubünden
NZZ, *Die Medienkuh*. Photo: Arno Balzarini
Nile, Egypt
Pigeon houses
Egypt
Paul Gayet-Tancrède (Samivel), *Pigeon house*, 1954. ‘Trésor de l’Egypte’
urban drone port: “Multi-level fulfillment center for unmanned aerial vehicles.” Diagrams
Amazon Drone Carrier

Kieron Marchese, “a giant delivery-drone blimp is amazon’s vision for the future” 2019. Designboom
airborne fulfillment center utilizing unmanned aerial vehicles for item delivery. Diagrams
Reit im Winkl, Germany
Deutsche Post AG, DHL Parcelcopter SkyPort, 2016. DHL
Public bus from Vrin to Illanz. Postbus
Important Dates

Fall, 2019

EPFL Drone Days
Sept. 13 - 15

Studio Introduction
Sept 17

Phase I: Prototypology and Geometrical Variations
Sept 18-Oct 27

Midreview
Oct 28

Phase II: Site Investigation and Mapping
Oct 29-Nov 11

Studio Trip
Nov 2-5

Phase III: Design Proposal
Nov 12-Dec 16

Final review
Dec. 17

The studio theme will span the entire academic year of 2019/20.

Accordingly, there will be continuity between the fall and spring semester, but each semester can be followed independently.

Team

Media x Design Laboratory
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Partner

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