

AIR LUMNEZIA

STUDIO HUANG FALL 2019



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,

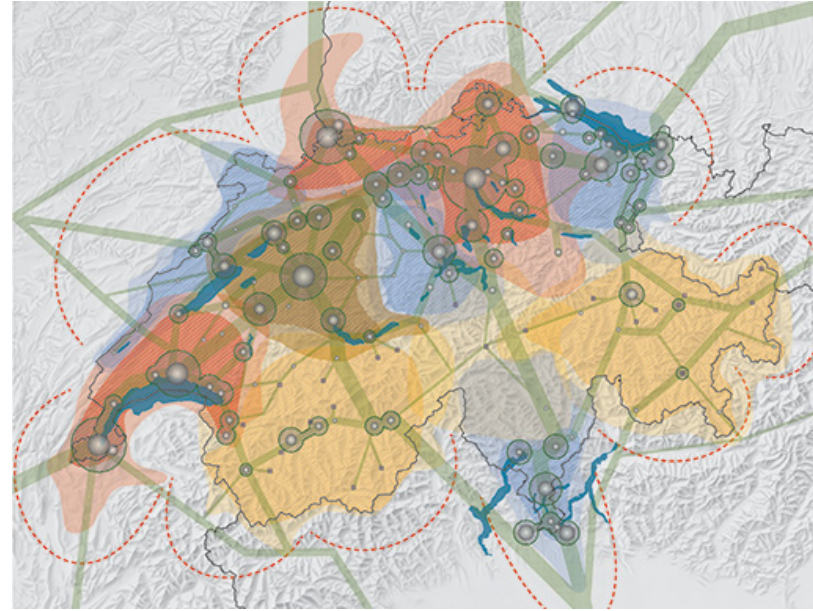
railways, bridges, or tunnels, drones can fly freely in the air operating in a new spatial territory overlayed onto the map of Spatial Concept Switzerland.

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.

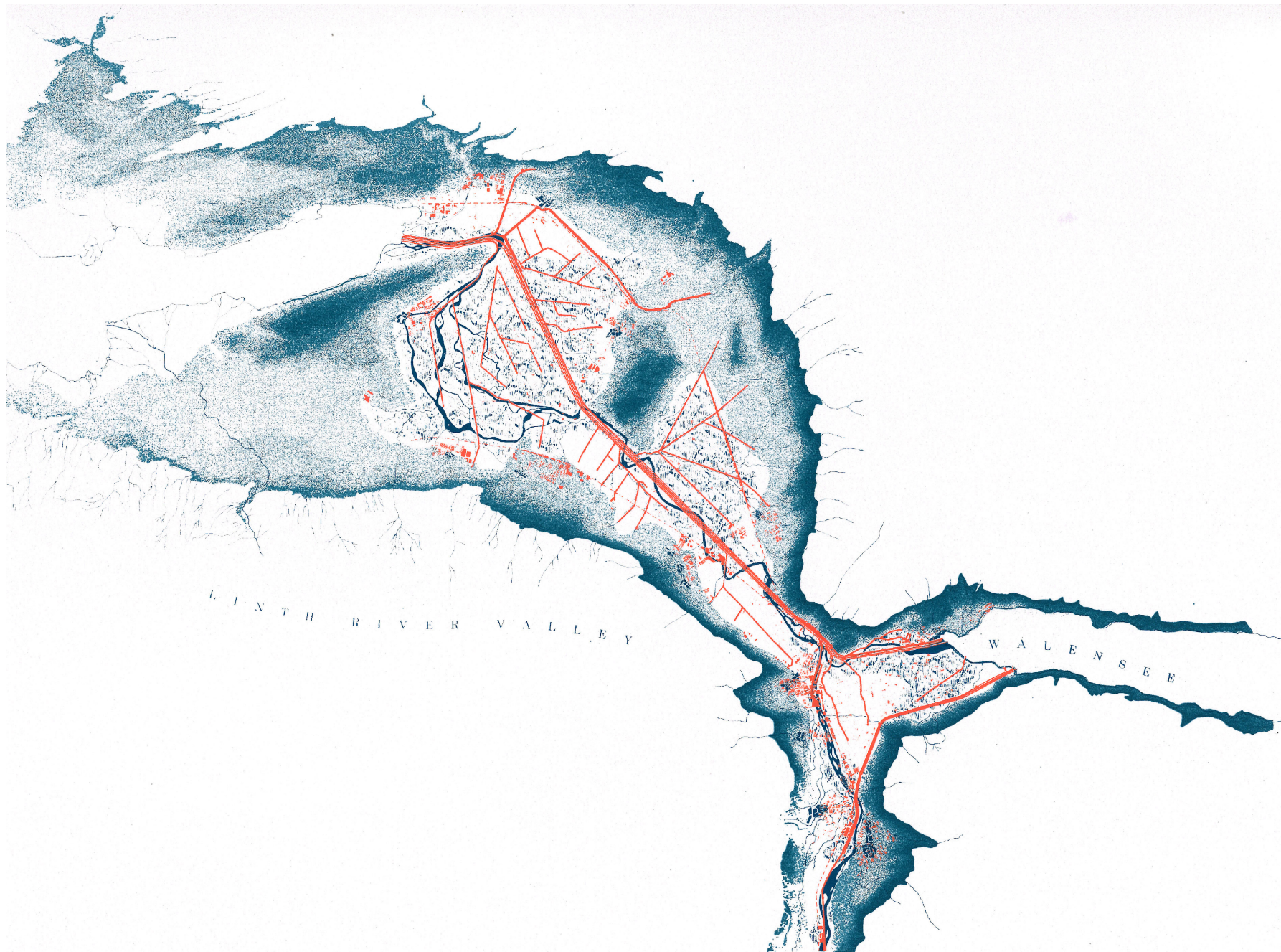
The studio will co-operate with the Digital Architecture and Planning Department in Vienna, and contribute to the on-going conversation on how unpopulated architectures and automated infrastructures can co-exist and spatially function within civic society.





Projects on Territory, Chair Prof. Topalovic, ETHZ

Michiel Gieben & Matilde Negri, *Switzerland as One City*. Based on *Dezentralisierte Grossstadt*, Armin Meili (1941-44), 2018.



Projects on Territory, Chair Prof. Topalovic, ETHZ
Andrew Suiter & Wenjie Zheng, *Linth and Limmat, a Story of Landforms (1806-2013)*, 2018.



Val Lumnezia, Graubünden
Photo: Adrian Michael



Vrin, Lumnezia
Photo: Lucia Degonda



Kilsby, England
Railway tunnel ventilation shafts, 1838.



Val d'Anniviers, Valais
Cable car stations, cafe. Photo: Christoph Holz



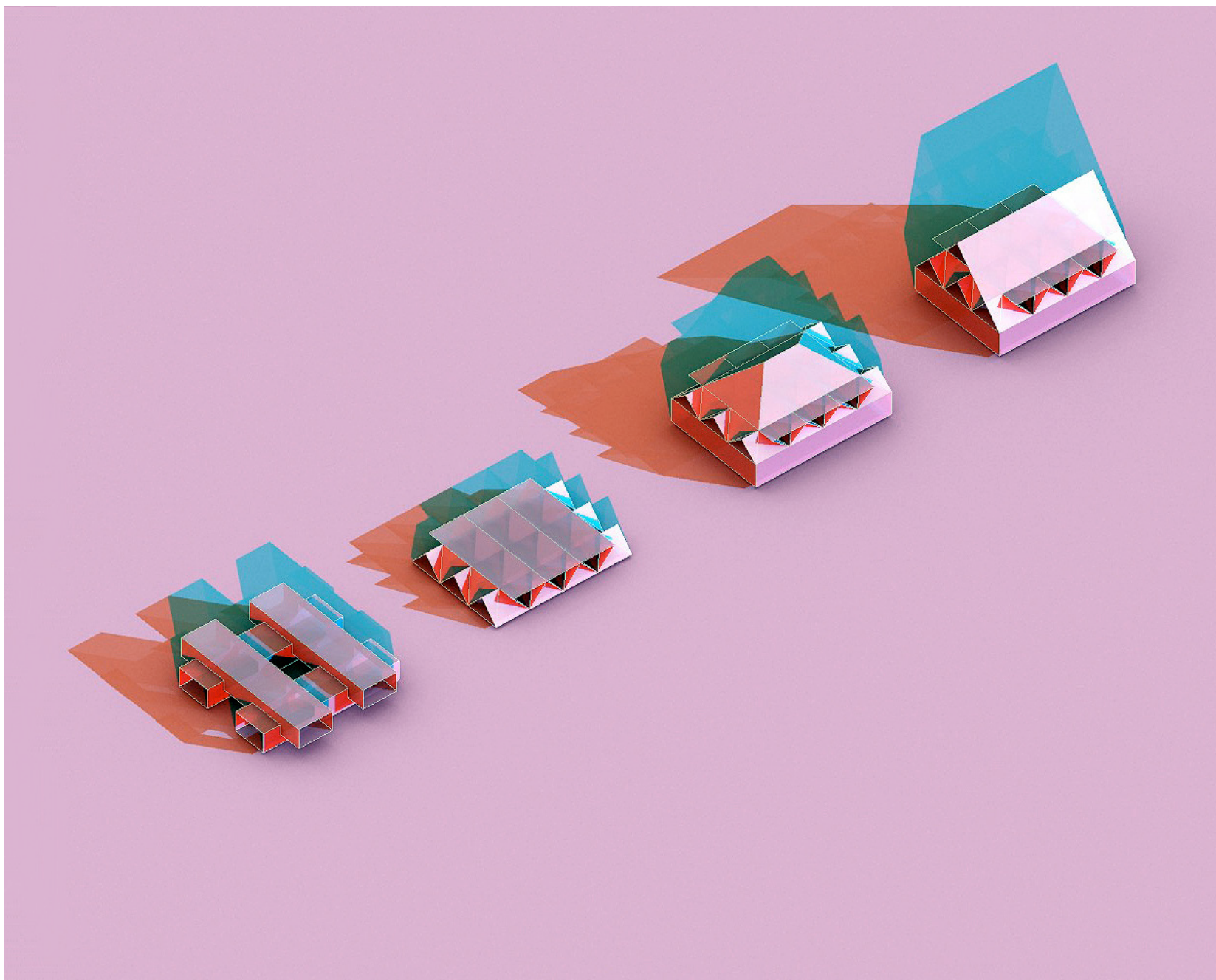
Engelberg, Obwalden
Herzog & de Meuron, *Titlis 3020 station*, 2018. Rendering



Julier Pass, Graubünden
Walter Bieler & Giovanni Netzer, *Julier Theatre Tower, Lookout Tower*, 2017. Photo: Faruk Pinjo



Realp, Uri
Bunker disguised as an alpine hut, 1945. Photo: Christian Schwager



MxD, EPFL
Frederick Kim, *Study in intersected geometry of vernacular form*, 2019. Diagrams



Saflisch, Valais
Heidi + Peter Wenger Architekten, *Trigon Holiday House*, 1956.



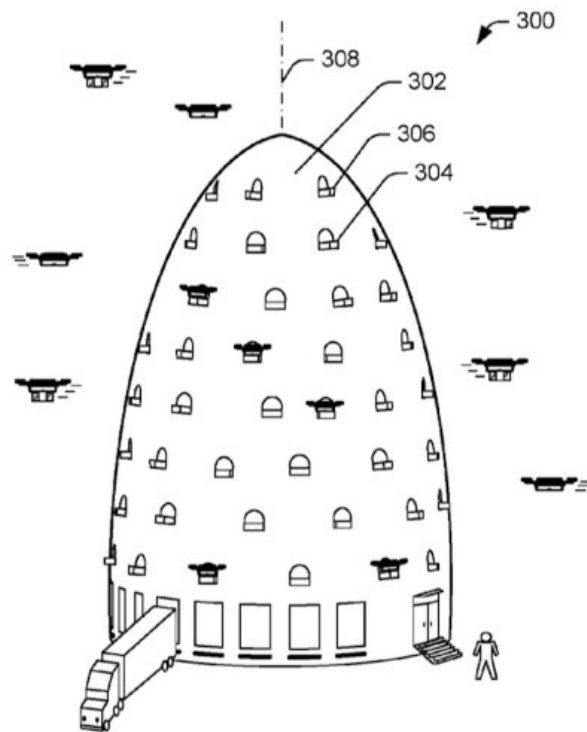
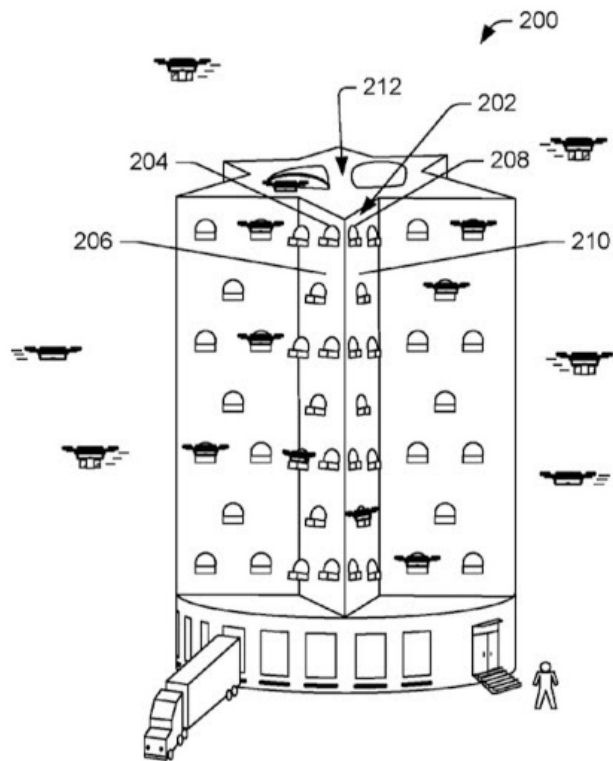
Davos, Graubünden
NZZ, *Die Medienkuh*. Photo: Arno Balzarini



Nile, Egypt
Pigeon houses



Egypt
Paul Gayet-Tancrède (Samivel), *Pigeon house*, 1954. 'Trésor de l'Egypte'

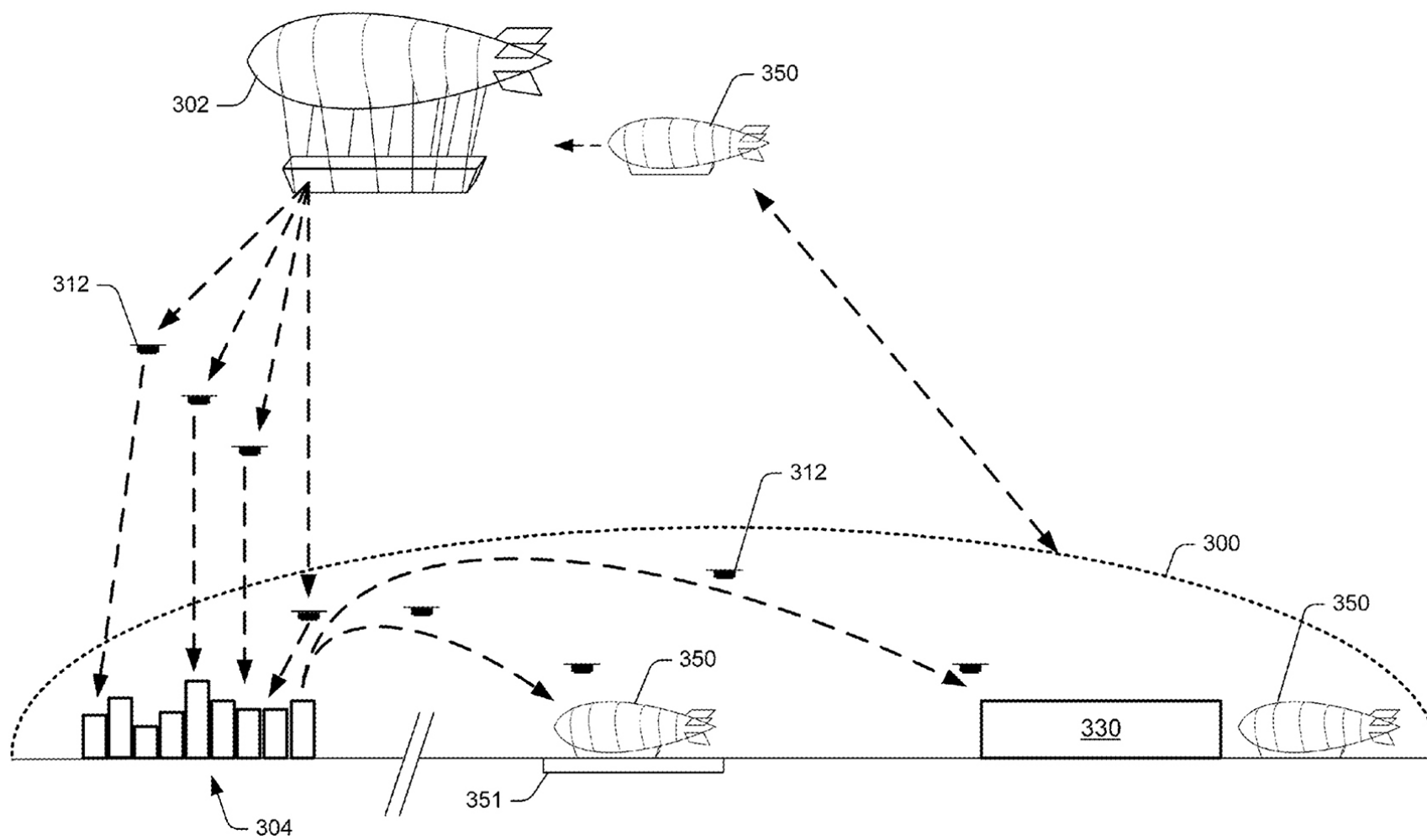


Amazon Patent US 2017/0175413
 urban drone port: “Multi-level fulfillment center for unmanned aerial vehicles.” Diagrams



Amazon Drone Carrier

Kieron Marchese, *"a giant delivery-drone blimp is amazon's vision for the future"* 2019. Designboom





Reit im Winkl, Germany
Deutsche Post AG, *DHL Parcelcopter SkyPort*, 2016. DHL



Vrin, Graubünden
Public bus from Vrin to Illanz. Postbus

Important Dates

Fall, 2018

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

Prof. Jeffrey Huang

Christina Doumptioti, Christoph Holz,

Mikhael Johanes, and Frederick Kim

Partner

Digital Architecture and Planning, TU Vienna

Prof. Michael Hensel

Defne Sunguroglu Hensel