

Map&Models

Application of Machine Intelligence to
articulates world perceptions

Karla Saldana Ochoa and Guo Zifeng



Europa.

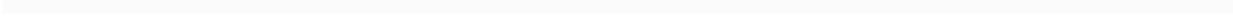
Nouantii flumini ostia	30	60
Canedunne et Orcas promontorium	31	60
Occidentalis lateris Descriptio quod Ibericus ac vergimus abluit oceanus. Post Nouantium promontorium		
Abrauam flumini ostia	19	60
Emee estus	19	60
Dei flumini ostia	18	60
Mun flumini ostia	18	60
Turris estus	18	60
Moracambrie estus	18	60
Seranaoru portus	18	60
Helisamie estus	18	60
Seciaie estus	18	60
Ianguioru promontorium	14	60
Tisobii flumini ostia	14	60
Tucet flumini ostia	14	60
Tucobie flumini ostia	14	60
Otaxotavum promontorium	12	60
Teebii flumini ostia	14	60
Patofabii flumini ostia	16	60
Sabrauie estus	18	60
Prellius	16	60
Herulis promontorium	16	60
Altueteum promontorium quod et dicitur	11	60
Solevum	11	60
Dannomum quod et dicitur	12	60
Ceruum promontorium	12	60
Meridionalis deinde lateris Descriptio quod Britannicus oceanus abluit. Post Ceruum promontorium		
Comome flumini ostia	16	60
Tamari flumini ostia	14	60
Ysac flumini ostia	14	60
Aluunii flumini ostia	14	60
Magnie portus	19	60
Trifantome flumini ostia	27	60
Novus portus	21	60

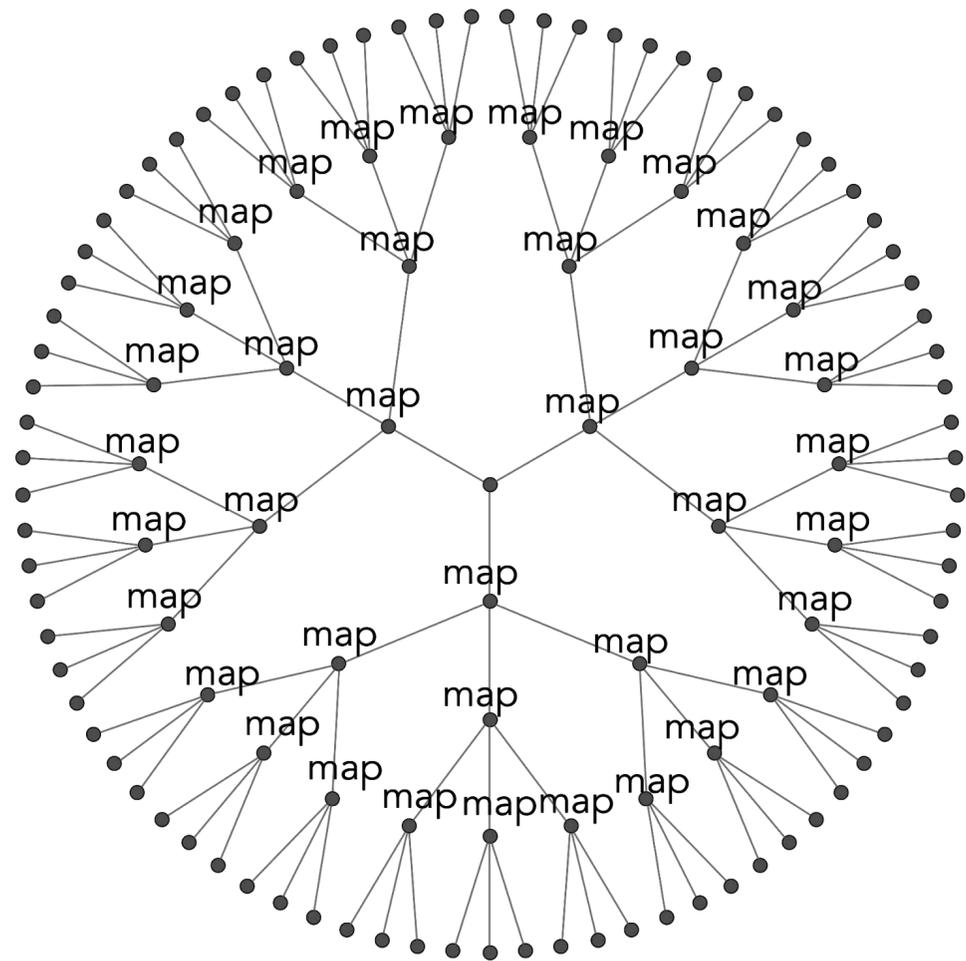
Britania uel Albion nunc Anglia. Liber Secundus.

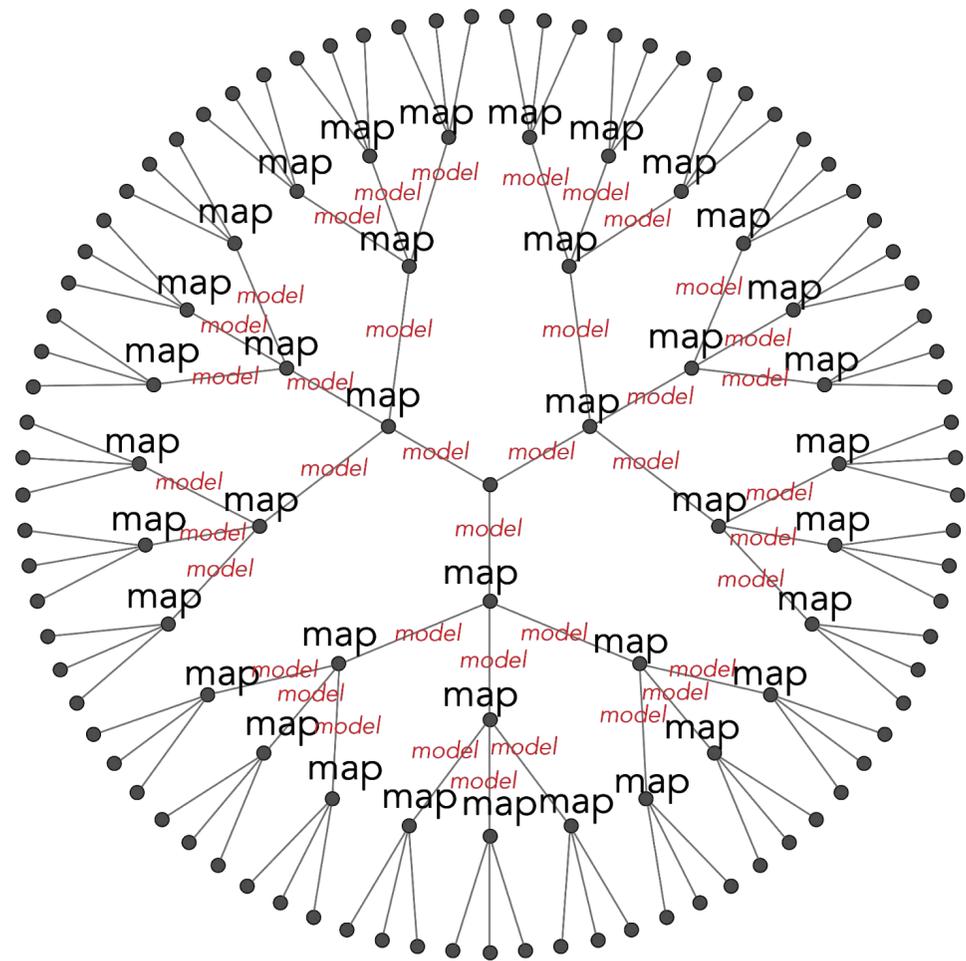
Mucantium promontorium	5	46
Orientalis deinde ac Australis plage latera que germanos alluntiu oceanus destrubuntiu. Post Canedunne et Orcada promontorium quod iam dictum est.		
Vinedunum promontorium	30	49
Vermum promontorium	30	49
Ile flumini ostia	30	49
Fipa alta	29	49
Vauis estus	28	49
Looae flumini ostia	28	49
Tucyie estus	28	49
Celie flumini ostia	28	49
Taualeorum promontorium	28	49
Iuae flumini ostia	26	49
Tanais estus	24	49
Tmae flumini ostia	22	49
Boydernis estus	22	49
Ialabii flumini ostia	21	49
Vedrae flumini ostia	20	49
Dunne smus	20	49
Grauanticu portus sue smus	21	49
Deilum promontorium	21	49
flumini ostia	21	49
Mare estus	20	49
Merem flumini ostia	20	49
Idmame flumini ostia	20	49
Lamfau estus	20	49
Post hanc Nouantium promontorium.		
Iuxta septentrionale latus sub cherfoneso eodem appellati nome Nouante habitant apud quos Ciuitates he.		
Lucopia	19	60
Fergomum	26	60
Sub his Elgonae apud quos Ciuitates he.		
Carbantorgum	19	49
Vellum	18	49
Coeta	20	49

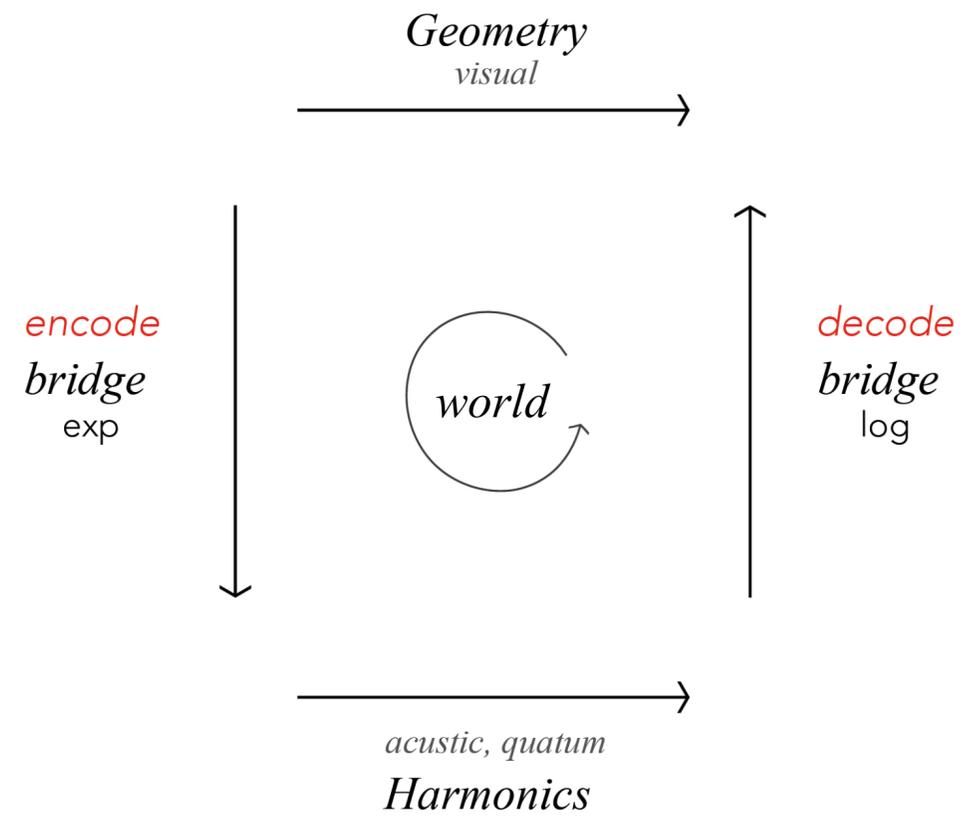
map



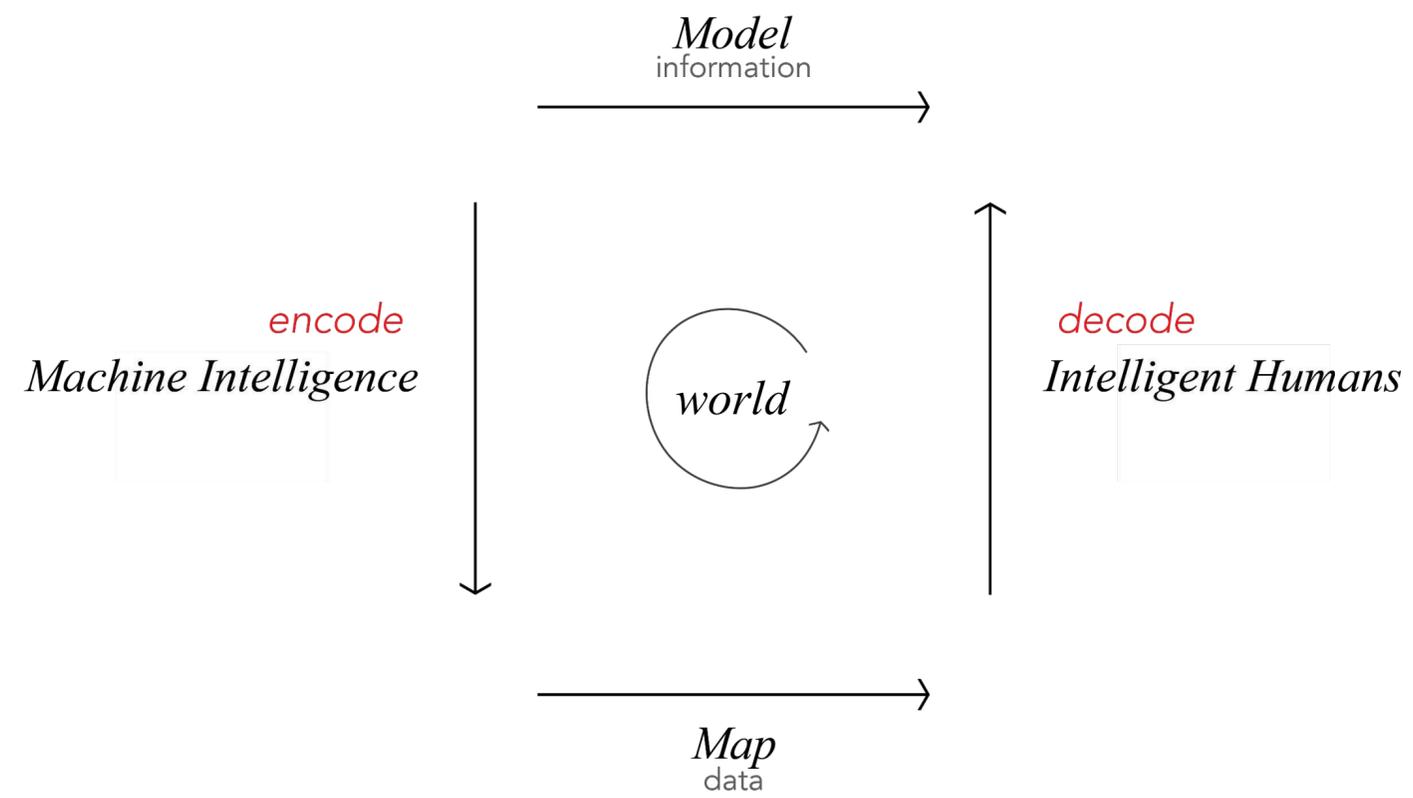








Model of Natural communication, Elias Zafiris



Model of Natural communication, Elias Zafiris

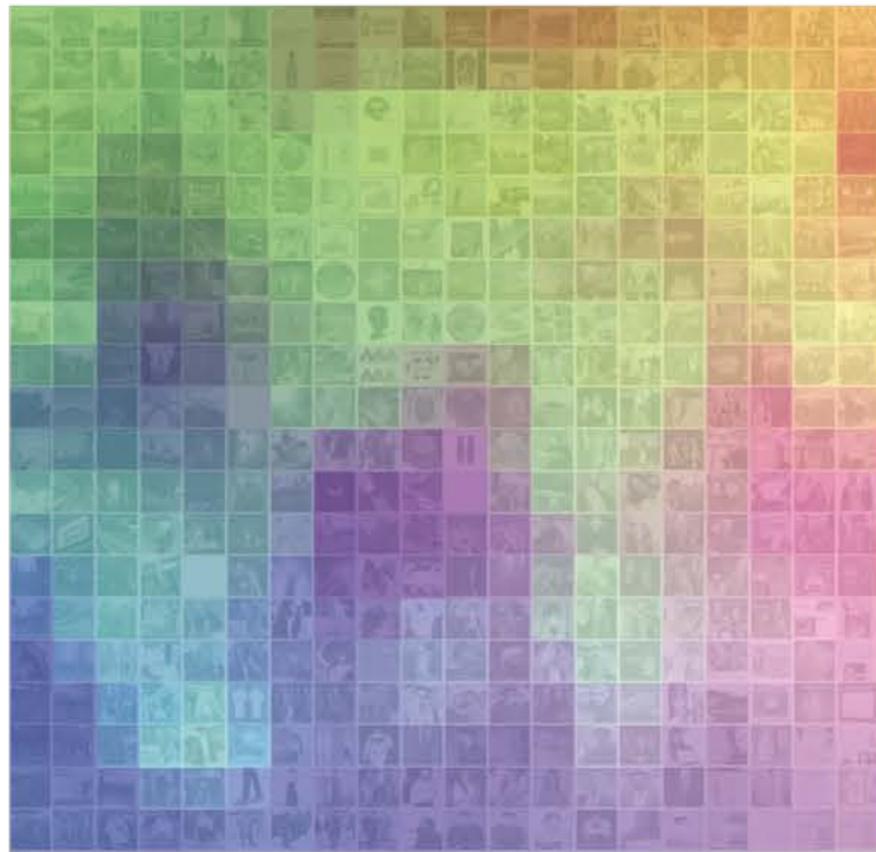
*In that Empire, the Art of Cartography reached such Perfection that the map of a single Province occupied a whole City, and the map of the Empire a whole Province. In the course of time, these Disproportionate Maps were found wanting, and the Colleges of Cartographers **elevated a Map of the Empire that was of the same scale as the Empire and coincided with it point for point.** Less Fond of the Study of Cartography, **Subsequent Generations understood that such an expanded Map was Useless,** and not without Irreverence they abandoned it to the Inclemencies of the Sun and of Winters. In the deserts of the West, tattered Ruins of the Map still abide, inhabited by Animals and Beggars; in the whole Country there is no other relic of the Disciplines of Geography.*

Jorge Luis Borges

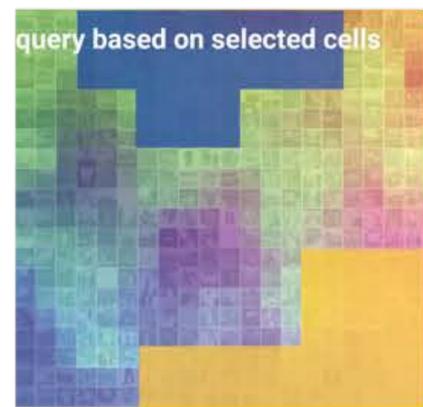
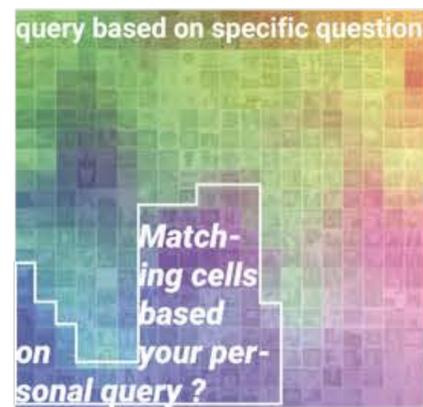
Suárez Miranda, *Travels of Prudent Men*, Book Four, Ch. XLV, Lérida, 1658

An aerial photograph of a city, likely New York City, showing a dense urban grid. The image is overlaid with a grid of semi-transparent, colored squares in various colors including green, blue, red, yellow, and purple. The word "Experiment" is centered in white text over the grid.

Experiment



Render the SOM by its weights, assigning colors to each cell

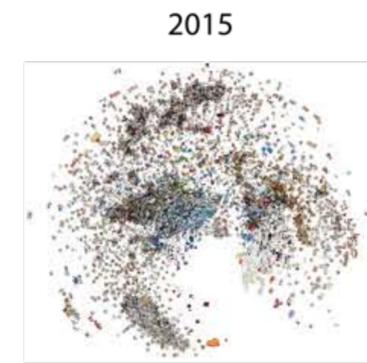


render back to space

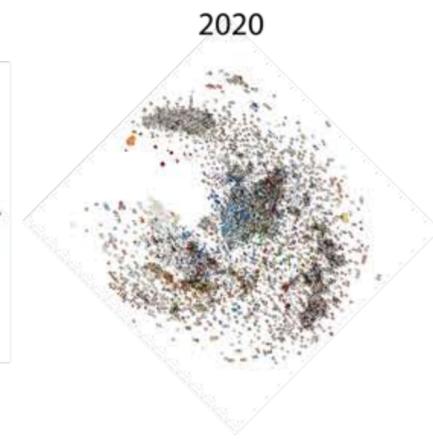
or



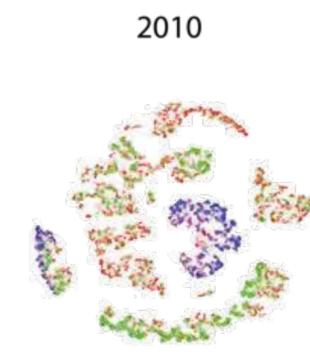
2010



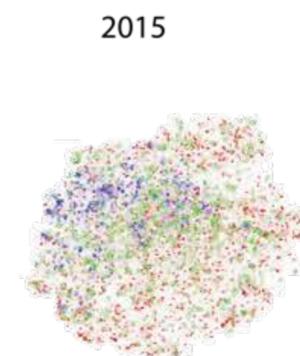
2015



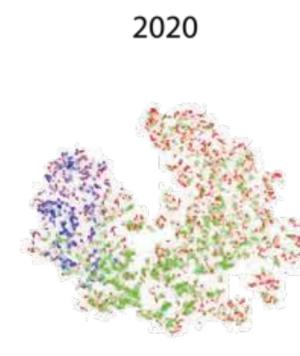
2020



2010



2015



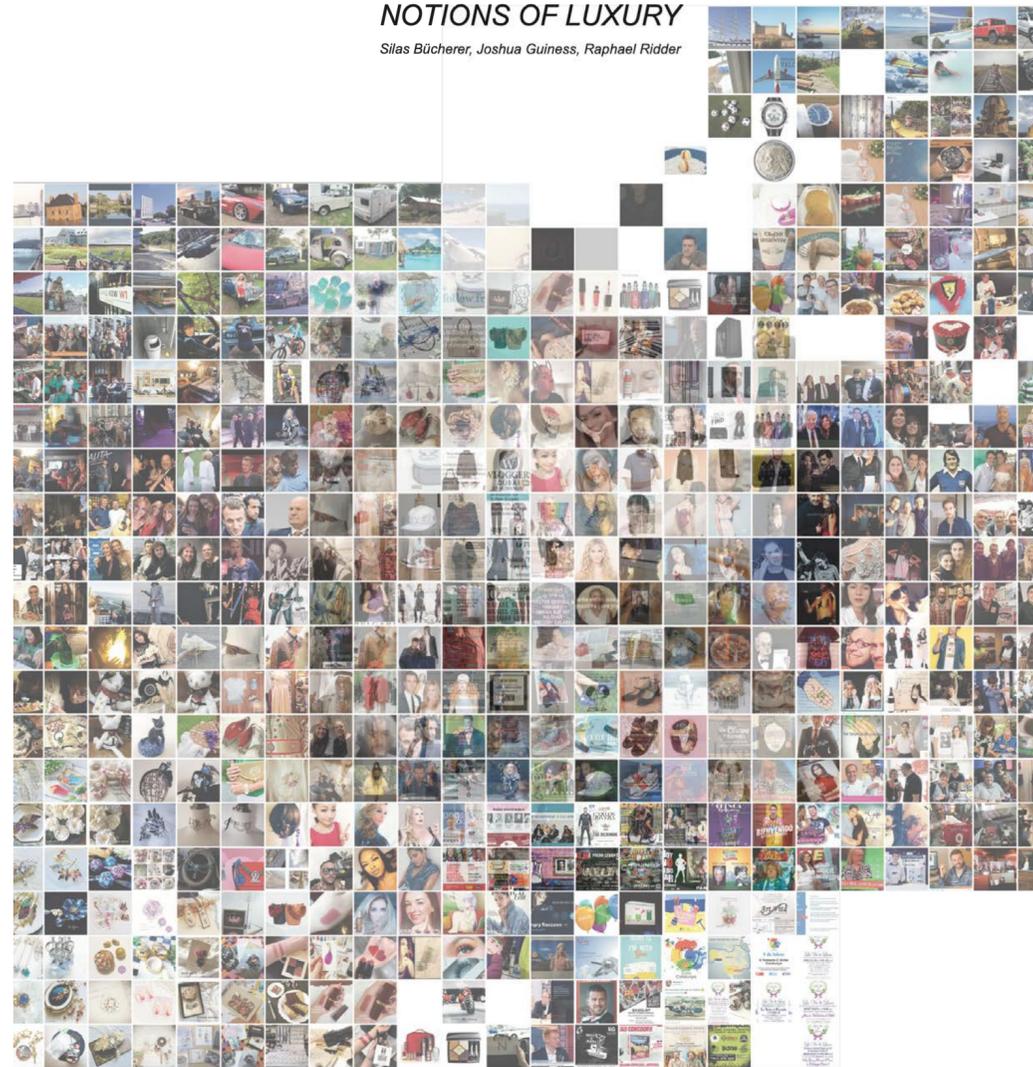
2020

render by time

Map and Models

NOTIONS OF LUXURY

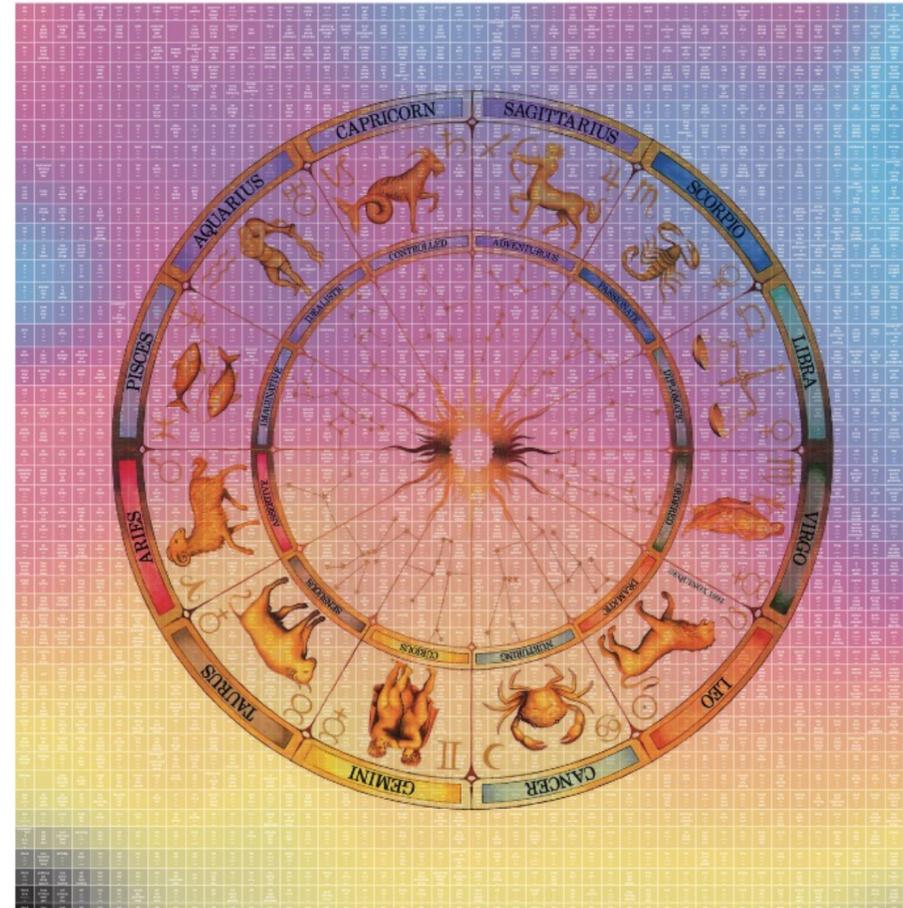
Silas Bücherer, Joshua Guinness, Raphael Ridder



PROJECT DESCRIPTION

The project aims to develop a better understanding of different concepts of luxury. The term „luxury“ which is used extremely often nowadays is commonly seen as a highly desirable state in consumer culture. However, it denotes neither a concrete living condition nor a specific type of object but is used rather as a category or label to certain goods or conditions, assigning them a higher monetary value as well as a high degree of excellence/elaboration. From a more critical perspective it is often associated with a lifestyle of lavishness and excess. The omnipresence of the term and its promotion as a sort of life goal led us to further investigate the notion of luxury and its different meanings in various cultural realms. In order to differentiate these cultural realms, we used the term in 3 different languages: „luxury“ (English), „luxe“ (French) and „lujo“ (Spanish). Employing twitter as a data source, we used the crawler to collect images posted on twitter in relation to each of the three abovementioned keywords (luxury, luxe or lujo). Creating one self-organizing map for each language, we wanted to visualize the differences and similarities in the way the term is used within certain linguistic and therefore cultural spheres. In a second step we compared the observations made in the SOMs to the different etymological origins of the term (Old French, Latin and English) to find possible correlations or contradictions in how the notion has been conceived over time.

Zodiac SOM



Project Description: In astrology, the human being is not only seen as a product of genetic factors and environmental influences, but is also characterized by the state of our solar system at the time of its birth. The planets are seen as signs of character and show themselves in different forms depending on their position in the zodiac. This allows us to draw conclusions about the characteristics of the individual human being. Our research was the attempt to redefine these characteristics by using machine learning to analyse twitter personalities, in the hope of finding clear characteristics.

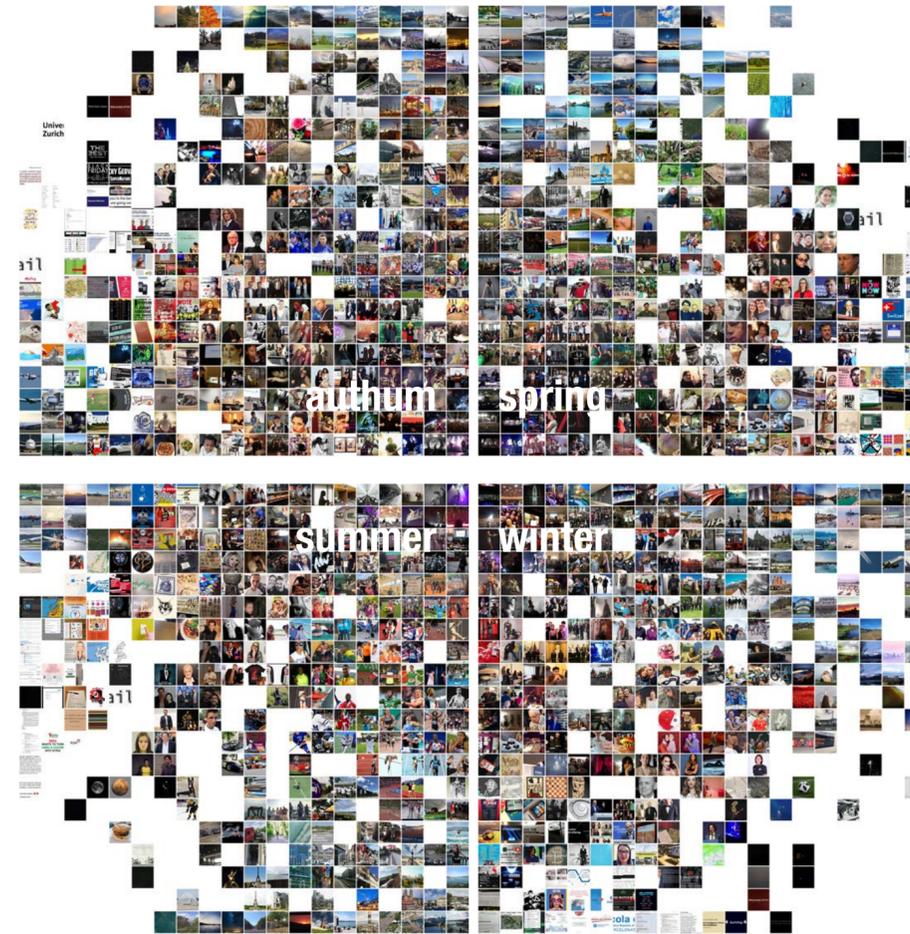
In a first step, we created a collection of famous personalities ordered by their zodiac sign (data from <https://www.thefamouspeople.com/>). Afterwards we collected tweets based on the created lists of names of the individual zodiac signs and compiled them in a SOM. We created a 48x48 SOM matrix containing all the tweets of all zodiac signs, in the hope of seeing a pattern emerge: what happened follows.



Comparing Baroque and Expressionist Art Baroque and Expressionist Paintings do not have anything in common at first glance. Nevertheless we believe that Machine Intelligence Algorithms can be used to find similarities between both painting styles such as painting themes or structures and color. To do this we first compared Expressionist Paintings to Baroque ones using Fourier Algorithm and vice versa. Portraits and Objects with clear geometries seem to be themes which are overlapping each other. Secondly we compare the Paintings using RGB Algorithm. This Method lets us find common features between Expressionist and Baroque Paintings. Interpretation is left open for the reader.

Salim Umar, Kay Gürber

Seasonal-Cities



The seasons have a strong influence on how we use cities, where we stay and how we look at them. People tend to show romantized versions of places. We were interested in how people depict a city during a certain time of the year. Which places are popular in which seasons? Is there a long for a certain season in another?

Hanna Elatifi, Jasmin Kunst



ComparingCites

We can say that cities from inner and outer perspective are pretty different, sometimes they're even opposite. Objective impression on cities seemingly includes information based on facts (e.g. historical buildings, climates etc); however, subjective impression tends to have something to do with people (feelings, titles etc), which would be an important factor to define big / small cities.

Sakiko Noda & Larissa Ruhstaller

Material matters: re-materializing the human's habitat

climate topical energy	climate change bank	climate change energy	climate change energy	carbon climate energy	carbon gas emission	emission carbon energy	emission carbon energy	energy emission carbon	carbon project
climate state energy	climate emission change	climate emission change	climate emission change	emission energy energy	gas power energy	emission carbon power	carbon power energy	power energy coal	carbon gas part
minister china state	climate change energy	climate country emission	climate emission carbon	climate emission carbon	china new gas	climate energy emission	climate emission gas	carbon part	gas carbon emission
bank economy year	climate world bank	climate change company	emission climate carbon	coal plant emission	company coal carbon	climate change food	climate emission change	warming change emission	gas study emission
fitch rating bank	fitch rating market	company market	climate carbon emission	project carbon emission	plant new state	forest climate land	climate change land	climate change setting	climate temperat ure warming
year and market	billion rating market	company year market	market new emission	new emission emission	company governm ent	right emission emission	climate change emission	temperat ure climate record	ice berg emission
percent market year	year market emission	billion company market	company market emission	burger restaurant emission	oil company government	envirom ent ministry	arctic china forest	climate year emission	change climate state
percent year emission	year percent market	principle trust standard	principle standard trust	principle trust standard	oil government project	brazil environment amazon	protest forest emission	climate change city emission	climate emission emission
trust principle standard	standard trust principle	brazil law 20 diary	trust principle emission	standard trust principle	principle trust standard	brazil environment amazon	governm ent amazon	governm ent world climate	people change city
standard trust principle	standard trust principle	conferen ce world energy	climate emission emission	principle trust standard	trust principle standard	minister president emission	official emission emission	climate change people emission	climate change people emission

Crises are sometimes fertile ground for innovation. Creative solutions usually emerge when humanity is pushed out of its comfort zone and radical changes are needed. Throughout its history, humanity has had to adapt repeatedly to changes in its habitat. Many times as a result of the impact of human productive activities. At this time our planet is struggling to survive, humans have pushed the planetary edges several times out of the safe zone, severely impacting the basic natural cycles that sustain almost all life forms. The origin and composition of the materials on which we base our civilization are the key to bringing balance back to our habitat.

The aim of this study is to build models that represent how materials and environmental crises are interconnected. In addition, to understand why data from specific materials activate different aspects of the environmental crises.

Cristián Calvo Barentin



The first impression is always the one that remains, and we believe that is not completely different when it concerns architecture. Even though spending more time within the buildings, than in front of, facades - with its different materialities, scales, and patterns and aesthetics- always introduce a structure and illustrates the idea of a project best. Our interest in this project is directed at the language with which facades communicate their inner cores to the outside, how it manifests itself on social media and how to use the outputs of our research as an instrument of analysis. We decided to investigate and organize the online appearance of the term #facade and the ways in which the online community posts various different visual and photographic material that architecture produces at its boundary between private and public. Our dataset consists of five thousand tweets and images crawled from twitter and third-party websites which were posted no earlier than July of 2019.

by Roberta S. da S. B. Gomes, Barbosa Julia Rosas, Elias Knecht

The Twitterer-in-Chief

Donald J. Trump is the 45th President of the United States of America and one of the most controversial figure of our days. Since he won the presidency on November 9, 2016 he has tweeted more than 13000 times, which makes up an average of more than 12 tweet per day.

Just to give a sense of his reach, another interesting statistic is the numbers of his followers (which by the way is constantly growing) and was around 13 millions by the time he was elected. Today that number is around 69 millions. Because of his role, his reach and his influence in today's world, we decided to take a closer look at those tweets.

By using an algorithm we were able to do a sentimental analysis and determining how much, in percentage, they were positive, negative or neutral. Moreover we were able to see which keywords were associated with which tweets.

This powerful map has various levels, exactly like the folders in a PC. It is possible to have an overview, to discover what is inside those „folder“ and finally to sort them out by date or time periods.

We will go through some of the most significant moments of the Trump presidency and test the pulse of the president, and we will see, if our model can give us an angle of President Trump that has not been shown before.

Disclosure: All the tweets after November 22, 2019, are not included in the research. Which means, events like the two articles of impeachment against the president on December 18, 2019, and the Iranian crisis after the killing of Iranian General Qasem Soleimani on January 3, 2020, are not covered.



Course program

01. Introduction of the course

17.02.2020

02. Data and Information

24.02.2020

Data and Information

Machine Intelligence and Intelligent Human

Deep learning, Neural Nets, Convolutional NN

Coding exercise

03. Applications

02.03.2020

Machine Learning and its
applications in Urban Context

04. Map and Model

09.03.2020

Territory

Map

Model

AI Classifiers

Object Classification

Coding exercise

05. Guest Lecture Diana Alvarez-Marin

23.03.2020

Examples of maps and models

Explanation of the experiment

06. Collecting Data

30.03.2020

Crawlers, API, TOKEN

Coding exercise

07. Categorization

06.04.2020

Data, labels, vectors

Available training data

Training data

Classification

Coding exercise

08. Self Organizing Maps

20.04.2020

Clustering

Spectrum

Coding exercise

09. Rendering your model

27.04.2020

Projecting spectrums to space

Coding exercise

10. Workshop

04.05.2020

Questions

11. Final Presentation

11.05.2020

This is your chance to share your own model, tell us a story.

Install Mathematica

The fastest way is the cloud

<https://www.wolframcloud.com/>

Access the power of the Wolfram Language in the Cloud



Wolfram|One



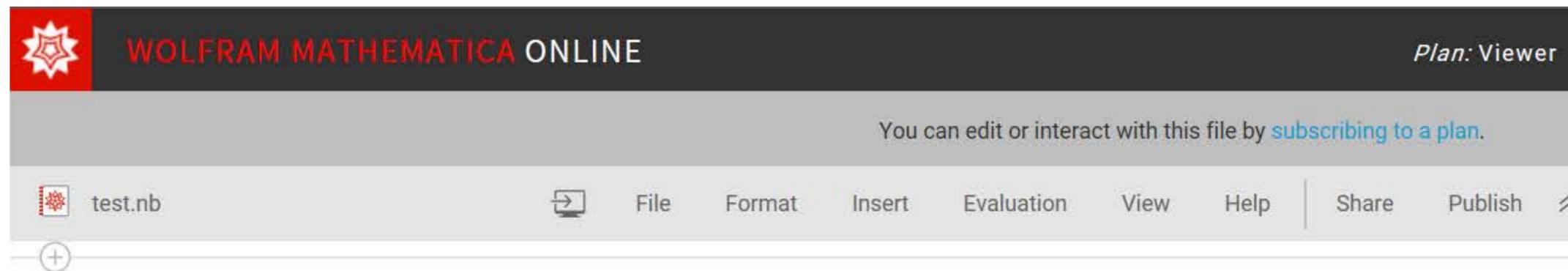
Development Platform



Programming Lab



Mathematica Online



Or from the IT shop

<https://idesnx.ethz.ch/>

Step 2: Choose Software

Please select the desired software

*  mathematica

(All categories) (All languages) (All OS)

 Mathematica Floating 11.3.0 Cat: Science Lang: EN OS: Win Price: CHF 0.00 Term: 365 days / renewable Mathematica: Symbolic mathematical computation program (network license)	 Mathematica Floating 11.3.0 Cat: Science Lang: EN OS: Linux Price: CHF 0.00 Term: 365 days / renewable Mathematica: Symbolic mathematical computation program (network license)	 Mathematica Floating 12.0.0 Cat: Science Lang: EN OS: Mac Price: CHF 0.00 Term: 365 days / renewable Mathematica: Symbolic mathematical computation program (network license)
 Mathematica Floating 11.3.0 Cat: Science Lang: EN OS: Mac Price: CHF 0.00 Term: 365 days / renewable Mathematica: Symbolic mathematical computation program (network license)	 Mathematica Floating 12.0.0 Cat: Science Lang: EN OS: Win Price: CHF 0.00 Term: 365 days / renewable Mathematica: Symbolic mathematical computation program (network license)	 Mathematica Floating 12.0.0 Cat: Science Lang: EN OS: Linux Price: CHF 0.00 Term: 365 days / renewable Mathematica: Symbolic mathematical computation program (network license)
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And there are also on line introduction

<https://www.ethz.ch/content/vp/en/campus/miscellaneous/it-shop.html>

The screenshot displays the ETH Zurich website's navigation menu and a video player for the IT-Shop introduction. The navigation bar includes links for Videoportal, Campus, Conferences, Events, Lectures, Speakers, Support, and Live. The 'Campus' menu is expanded, listing various services such as Betrieb, ETH Alumni Headquarter, ETH-Bibliothek, ETH-Day, International Relations and Security Network, and IT-Shop. The video player shows a welcome message and a play button overlay.

ETH zürich

↓ Videoportal | **↓ Campus** | ↓ Conferences | ↓ Events | ↓ Lectures | ↓ Speakers | ↓ Support | ↓ Live

Campus

- Betrieb
- ETH Alumni Headquarter
- ETH-Bibliothek
- ETH-Day
- International Relations and Security Network

Miscellaneous

- IT-Shop**
- Multimedia
- Windows 10
- NCCR QSIT-Quantum Science and Technology
- PROTECT YOUR BRAINWORK.
- SGU

IT-Shop

Search all videos

Welcome to ETH Zurich's IT Shop

You are currently using the Portal as **Anonymous User**

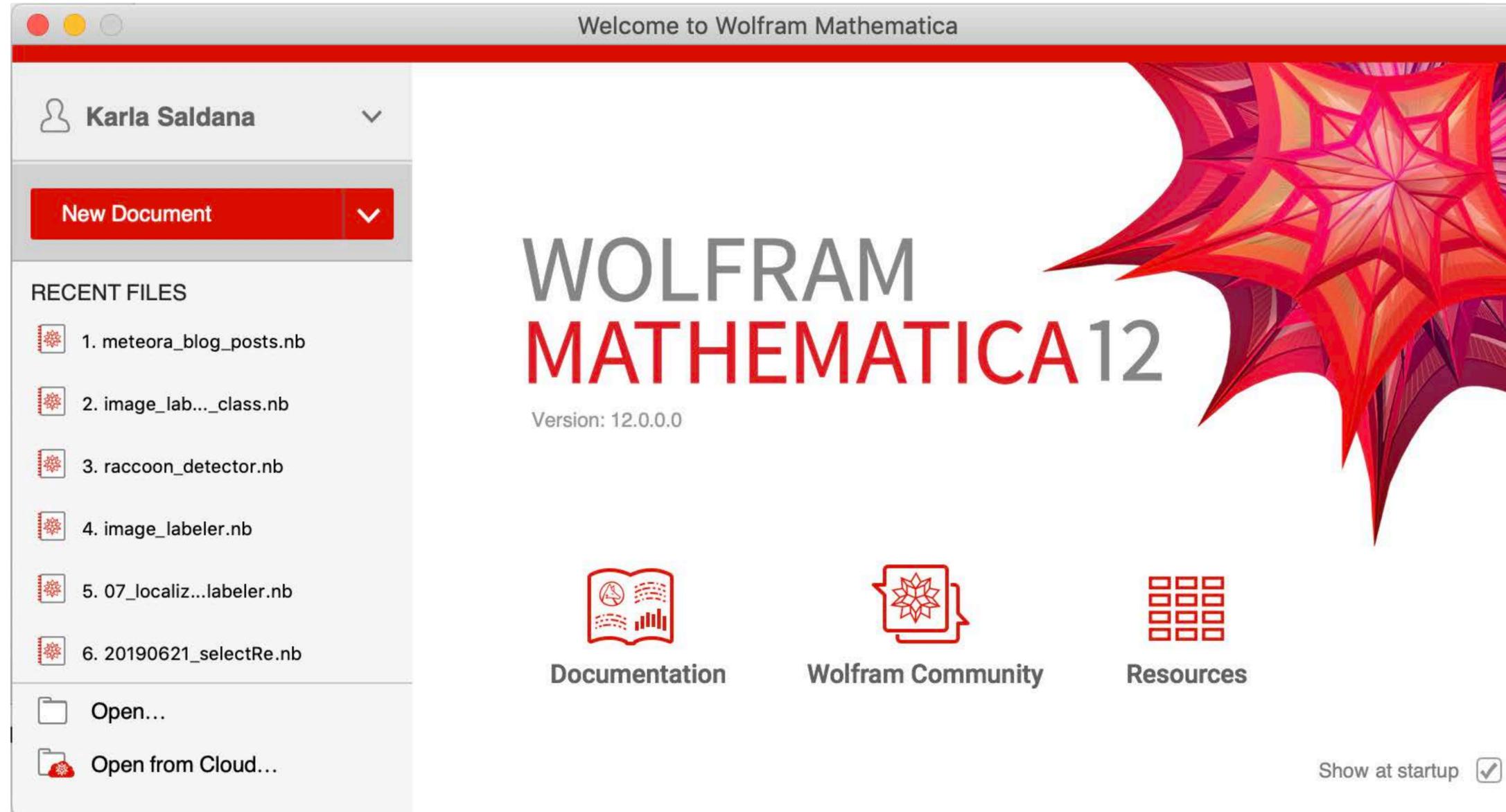
The IT Shop is the first step towards a «One-Stop-Shop» for services and products provided by the IT Services department. At its current development stage it enables employees, students and visitors to easily purchase software necessary for work, studies, research and teaching.

Disclaimer: To order software to be installed on your managed computer please contact your IT Support Group (ISG) or send an email to servicecock@it.ethz.ch.

To order software for computers that you manage yourself...

Sign in with your ETH Zurich mail account

If everything works



Thank you :)

<https://www.caad.arch.ethz.ch/teaching>