Didier Dupertuis

Full-stack developer passionate about web technologies, GIS, machine learning, history and space exploration. Looking for new opportunities as a DevOps/full-stack specialist.

Relevant Experience

	Year	Experience	Location
EPFL	03/21 current	**Doctoral student**, Digital Humanities Laboratory (EPFL) » Extracted entities from the 36'000 articles of the Historical Dictionary of Switzerland (HDS) and linked them to Wikipedia, resulting in a linked version of the HDS available here. » Developed a web-based GIS platform to explore historical records from the 1808 Napoleonic cadaster of Venice as well as the 1741 Catastici (tax-records) » Developed a web-based platform to explore and modify 3D models of historical cities in the cityJSON format.	Lausanne, Switzerland
EPFL	10/20 02/21	**Full-Stack Developer**, Digital Humanities Laboratory (EPFL) » Developed a demonstration website to explore 3D pointcloud scans of cities, beginning with Sion in Switzerland: scanvan.dhlab.epfl.ch.	Lausanne, Switzerland
Unil	07/18 06/20	**Research Engineer**, Information Security and Privacy Lab (UNIL) » Developped a web-app to explore questions of kin genomic privacy: santeperso.unil.ch. » Participated in the creation of the kin genomic privacy algorithm behind the app. » Conducted a user survey and did the data-analysis for the accompanying scientific paper.	Lausanne, Switzerland
	04/17 03/18	**Data-management intern**, Swiss Federal Statistical Office (SFSO) » Created historicized geographical metadata to handle municipalities and regional data through time, now available as a web-app. » Centralized unstructured excel regional data in a SQL database for my group.	Neuchâtel, Switzerland
UNIPOLY	11/16 06/16	**Treasurer and conference responsible**, UniPoly, student association for sustainability » In addition to my role as treasurer for the 2015 comittee, I organised a recruitment campaign and prepared 7 conferences/debates on sustainability topics as well as a visit of the Gösgen nuclear plant.	Lausanne, Switzerland

Education

	Year	Degree	Location
coursera	2017	**Neural Networks for Machine Learning**, coursera.org Certificate	Lausanne, Switzerland
Unil	2013 2016	**Master in Economics**, University of Lausanne (UNIL) » GPA Master: 5.26/6 » Relevant courses: Applied econometrics, Macroeconometrics, Behavorial economics, Dynamic macroeconomic models.	Lausanne, Switzerland
EPFL	2009 2013	**Bachelor in Computer Science**, EPFL » Third year exchange at the Royal Institute of Technology (KTH) in Stockholm. » Relevant courses: Software Engineering, Artificial intelligence, Time Series Analysis.	Lausanne, Switzerland

Skills

Technical

Web: React.js, Vue.js, OpenAPI, Flask, Node.js, Django, Sass
Deployment: Docker, Kubernetes
Programming: Python, Scala, Java, SQL, C/C++
Data-vizualisation: d3.js, Three.js, matplotlib
Machine learning: pandas, spacy, scikit-learn, PyTorch, R

Languages

French: Mother-tongue
English: Professional skills (C1)
German: Professional skills (C1)

Publications

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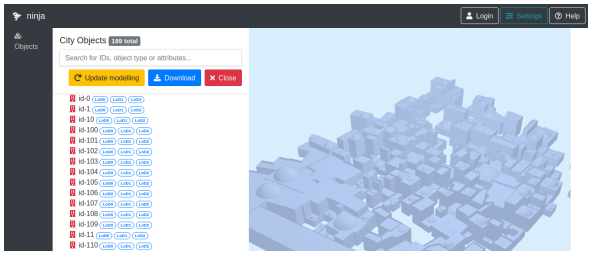
Year	Title
2023	**From Automated Bootstrapping to Collaborative Editing: A Framework for 4D City Reconstruction**, Digital Humanities 2023 Conference
2022	**KGP Meter: Communicating Kin Genomic Privacy to the Masses**, 2022 IEEE 7th European Symposium on Security and Privacy (EuroS&P)
2018	**Inheritance Flows in Switzerland, 1911-2011**, Swiss Journal of Economics

Projects

Historical CityJSON editor

In this project, we created a pipeline to create a documented 3d model from historical data. I developed a web-interface to interact and edit the 3d model. It allows to changes attributes (e.g. roof slope, height, etc) and relaunch the procedural modelling of the city. Presented at the Digital Humanities 2023 conference.

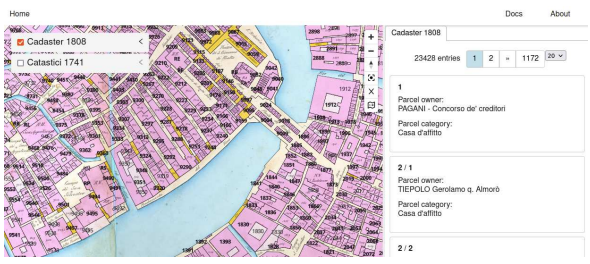


The linked HDS

The Historical Dictionary of Switzerland (HDS) is a fascinating source on Swiss history. Started in the 1980s as a paper-based encyclopedia, it was made without hyperlinks. With this project, I used a Natural Language Processing (NLP) model to recognize entities in the text and add hyperlinks to the 36'000 HDS articles. The linked HDS now offers a much more modern and intuitive exploration experience.

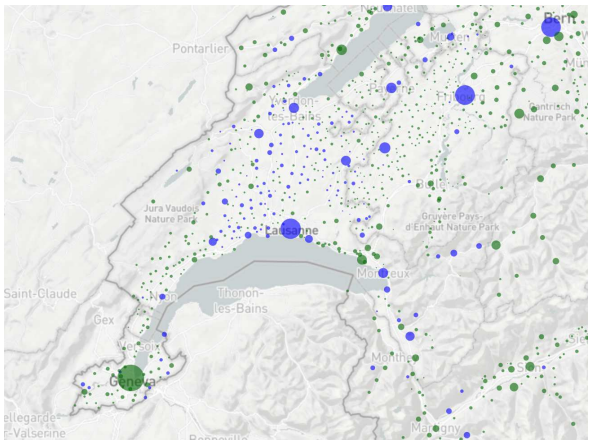
Historical Venetian Cadaster Explorer

With the parcels of Venice project, the DHLAB is digitizing historical cadastral data for Venice: maps of parcels with their accompanying metadata (owners, rent, etc) As part of the Parcels of Venice project, I developed a platform to explore spatio-temporal cadastral registries. It allows to view parcels, their owner and metadata. Moreover, I supervised a student to perform named entity recognition on the 23'000 entries and disambiguate unique persons and link them to the parcels they own.



Population of Swiss municipalities over time

For this vizualisation, I extracted population data from texts of municipalities pages of the Historical Dictionary of Switzerland. Building upon the available data, I created a simple model to extrapolate the population of all municipalities until 1200.

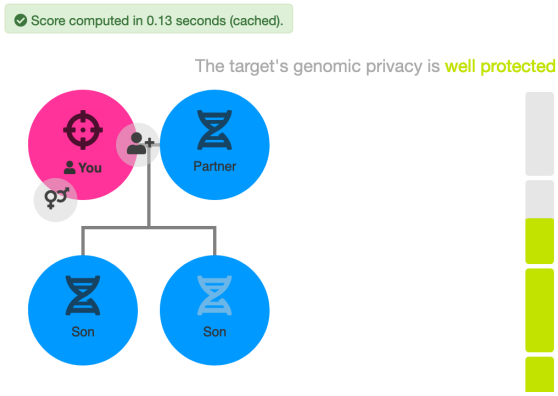


ScanVan Project: explore cities in 3D

The ScanVan project at EPFL is exploring new ways to create digital 3D models of cities using innovative cameras and algorithms. I developed a website to explore those 3D reconstructions, beginning with our first scan: the city of Sion.

Kin Genomic Privacy Estimator

For 100$, anyone can get his genome tested by companies such as 23andMe. At the Information Security and Privacy Lab, I developed a website that allows to estimate how much of your genomic information remains hidden when member(s) of your family had their genome tested.



3D Solar System

To get familiar with orbital mechanics, our solar system and Three.js, I am having fun on this simple solar system animation. For now it uses descriptive Keplerian Orbits. It will soon be extended with proper Newtonian Mechanics, planets' moons data and nicer sprites (WIP).