Thomas Favre-Bulle

Software Engineer

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Skills

JavaScript (ES6, Node.js, Angular, jQuery, d3) ◦ Python ◦ R (stats, ggplot2, Hadleyverse, gis packages) ◦ SQL (PostgreSQL) ◦ CSS (Sass, Bootstrap) ◦ HTML & Pug ◦ git ◦ LaTeX

Adobe Creative Cloud ◦ Office ◦ QGIS

Languages
French, English: fluent ◦ German, Spanish: basic

Summary

I am an entrepreneur and software engineer with a love for communicating actionable solutions to problems grounded in data.

I started solving complex problems bringing together multiple dimensions by practicing architecture, and began automating the process with software. I started a PhD to strenghten my skills in scientific computing and conducted experiments with a large number of respondents. I co-founded a startup that successfully helped 15 political campaigns find new donors.

I am looking to use data to help people take better actions.

Experience

Solon Intelligence ◦ **Co-founder** ◦ **San Francisco** ◦ **2014 to 2016 (2 years)** ◦ **link**

- Built a **lead-generation platform** connecting political campaigns with the most promising donors, using network analytics.
- Assembled and cleaned political donation data from various dirty sources (10M records) and 3rd party contact data into an **AWS PostgreSQL RDS** using **Python** (including scraping some sources using beautifulsoup), updating nightly, filtering unidentified duplicated records.
- Wrote a sampled, weighted PageRank algorithm in **PostgreSQL** to identify central donors and used user inputs (list of contacts, past and current donors, opponents) to recommend promising donors based on their past donations (distance in the network of donation and centrality) and features' similarity using **Python**.
- Identified 3M unique individuals in the data with efficient entity resolution using conditional self-joins in **PostgreSQL** and built a feature set for these individuals as input for recommendation algorithms.
- Identified key actionable insights at each phase of the donor solicitation process via user research and in-person testing.
- Built a card-based UI to present recommendations through an **Angular** app with **Node.js** backend, tested via **Selenium**.
- Closed sales to bring Solon to 15 paying customers and turn cash-flow positive.

Stanford University ◦ **Visiting researcher** ◦ **Sep. 2014 to March. 2016**

- Awarded a $90,000 research grant by the Swiss National Science Foundation.
- Designed and implemented a **fully randomized conjoint survey experiment** to uncover causal mechanisms in citizen's support for cross-border metropolitan policies on land-use, transportation, and water.
- Recruited 700 respondents on **Amazon MTurk** and wrote treatment randomization with **JavaScript** and **JQuery**.
- Uncovered significant effects of support for policy coordination using conjoint analysis and ordinal logistic regressions in **R**.
- Published results in a scientific article with custom forest plots built with **ggplot2 in R**.
- Recruited and supervised 2 research assistants in a project to evaluate the definition of metropolitan areas using **cluster analysis in R** on the network of commuting relationships.
- Uncovered racial biases in CA parole board decisions with **logistic regressions in R** that led to an article in the *Federal Sentencing Reporter*.

Swiss Federal Institute of Technology (EPFL) ◦ **PhD Student** ◦ **Lausanne, CH** ◦ **Sep. 2011 to Apr. 2017 (expected)**

- Assembled, cleaned and normalized data on population and local governments in the USA, including digitization of historical data from scanned sources, using **Python**, **R** and **PostgreSQL** (100,000 datapoints over 60 years).
- Calculated geographic relationships between entities with **R GIS packages** (sp, rgeos, maptools...).
- Computed institutional fragmentation metrics in **R** (Herfindahl and others).
- Designed and built an interactive atlas with **d3js**.
- Wrote successful $40,000 grant application for scientific equipment.

Swiss Federal Institute of Technology (EPFL) ◦ **Lecturer** ◦ **Lausanne, CH** ◦ **Sep. 2011 to Sep. 2014**

- Taught an architectural and urban project class (15 master students, 3 semesters)
- Taught an agent-based modelling class, serving as introduction to programming (20 bachelor students, 1 semester).

LRS Architectes ◦ **Architect** ◦ **Geneva, CH** ◦ **Feb. 2011 to Sep. 2011**

- Lead a project to design a bank headquarters, finding a spatial solution (floorplans) to a complex set of constraints including budget, multiple levels of security and flow separation (10,000sqm, $30M), and lead meetings with clients.

Office for Metropolitan Architecture (OMA) ◦ **Paid intern architect** ◦ **Rotterdam, NL** ◦ **Aug. 2007 to March. 2008**

- Paid internship at one of the **top 5 architecture firms** worldwide.
- Collaborated in the design of an offshore hotel in Monaco (35,000sqm, $90M), and a mixed-use tower in Paris (140,000sqm, $600M), in both cases optimizing floorplans for a complex set of constraints in large projects.

Education

Swiss Federal Institute of Technology (EPFL)
PhD ◦ Lausanne, CH ◦ Sep. 2011 to Apr. 2017 (expected)

Swiss Federal Institute of Technology (EPFL)
MSc, Architecture and Urban development
Lausanne, CH ◦ 2010

- Developed agent-based algorithms in **Java** and **Netlogo** to find floorplan configurations satisfying a large set of constraints and, in testing, successfully generated floor plans for a police station and an apartment building, each with 150+ rooms.

Univ. Paris 1 Panthéon-Sorbonne
Bachelor of Laws ◦ Paris, FR ◦ 2010

ENSA Bretagne
BA, Architecture ◦ Rennes, FR ◦ 2007

Interests

I am excited about medieval Iceland, public transit, and space exploration. I play city building videogames. I travel to explore new cities. I learned to code at age 12 on a Psion Organizer II.