

Robert On

Software Engineer turned Development Economist and Data Scientist, driven to make the most of resources with good intentions.

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EXPERIENCE

Agency Fund — Member

DEC 2021 - PRESENT

- Review funding proposals for evidence-based, cost-effective, high impact interventions and organizations.
- Provide data and technology capacity building to improve learning and efficacy of non-profit organizations.

Google Health — Data Scientist

APRIL 2020 - DEC 2021

- Analytical and Causal analysis in the COVID-19 pandemic leveraging a package I developed, [tscompare](#), for time-series causal analysis.
- Developed empirical strategies for public health services for low-resource communities.

Living Goods — Data Scientist

OCTOBER 2021 - PRESENT

- Developed a random forest model to predict vaccine defaulters in Kenya and Uganda.
- Developed an ETL pipeline to enable data analysts/scientists to more easily parse data from a big, semi-structured NoSQL data source.

Benshi.ai — Data Scientist

APRIL 2021 - JUNE 2021

- Designed an adaptive experiment platform for community health worker apps.

Dimagi — Data Scientist

OCTOBER 2020 - PRESENT

- ETL tool to do bulk exports of JSON data into a Postgres database.
- Worked with one of Dimagi's clients to develop four solutions leveraging: (1) descriptive geospatial time series, (2) causal analysis via regression discontinuity design, (3) predictive ML model (RF and GBT) to predict maternal mortality and childhood malnutrition, and (4) anomaly detection for unusual child weight measurements.

NYU Public Safety Lab — Data Scientist

APRIL 2020 - PRESENT

- Prosecutor performance dashboard estimating the causal effect of prosecutor discretion on incarceration and public safety outcomes.
- Visualization of an instrumental variable approach to estimating policy effects from variation in

Chan Zuckerberg Initiative — Data Scientist

JUNE 2018 - MARCH 2020

- Worked with several District Attorney offices across the country to develop data systems to enable evidence-based decision making in the

SKILLS

Causal inference, randomized trials, adaptive experiments, impact evaluation.

Prediction, machine learning, artificial intelligence, resource targeting/allocation.

Development economics, poverty targeting, smallholder agriculture, criminal justice, community health.

Software engineering, ICTD, advertising and search technology.

TECHNOLOGY

Data: Tidyverse, *SQL, BigQuery, Anaconda, Apache Spark, RStudio Server, Jupyter, TensorFlow, MapReduce.

Mobile/Web: OpenDataKit, Shiny, Plotly, Flutter, Android, Node.js, jQuery, PHP, Angular.

DevOps: Linux/Shell, Docker, Terraform.

LANGUAGES

Programming: R, Python, Javascript, Dart, Scala, Java, C++, Go, Polyglot.

Spoken: English, Mandarin Chinese.

practice of prosecution.

- Developed impact evaluation framework for organization to assess and measure social impact.

Busara Center for Behavioral Economics — Data Scientist

APRIL 2017 - AUGUST 2017

- Developed a paid IVR phone solution to estimate an individuals' value of time.

One Acre Fund — Data Scientist

APRIL 2016 - MARCH 2017

- Yield Gap Analysis leveraging Random Forests to estimate yield from multi-modal data (soil spectrometry, survey data, geospatial data, etc)
- Conducted 400K+ farmer RCT using SMS messages to improve food security in Kenya and Rwanda. Estimated social returns to investment of 80x.

World Bank Group — Consultant

DECEMBER 2015 - JANUARY 2016

- Consultant to help set up a RCT for an education non-profit in Kenya.

Precision Development — Data Scientist

JULY 2015 - MARCH 2016

- Founding engineer turned research collaborator assisting in scoping the market and developing prototypes for precision agriculture leveraging geospatial agricultural data and digital communication tools to smallholder farmers.

GiveDirectly — Data Scientist

JUNE 2014 - AUGUST 2014

- Set up and conducted a large scale randomized controlled trial that estimated the general equilibrium effects of unconditional cash transfers in rural Kenya. <https://www.nber.org/papers/w26600>

Google Inc — Software Engineer

AUGUST 2003 - NOVEMBER 2013

- Helped expand Google's syndicated search and ads business in EMEA (first engineer in our European offices).
- Worked on the Economics team doing data-driven economics research in ads, search, and societal trends.
- Developed nowcasting tools leveraging Google search data to predict macroeconomic indicators such as inflation, unemployment, etc.
- Worked on monetization and syndication models for audio and video content including associated [patents](#).

EDUCATION

University of California, Berkeley

PhD Information Science

MS Agricultural and Resource Economics

SEPTEMBER 2013 - DECEMBER 2018

Dissertation Committee: Hal Varian, Michael Kremer, Edward Miguel, Joshua Blumenstock

Stanford University
MS Statistics

JUNE 2011 - AUGUST 2012

University of California, Irvine
BS Information and Computer Science
BS Electrical and Computer Engineering

SEPTEMBER 1999 - JUNE 2003

PUBLICATIONS

Digital Information Provision and Behavior Change: Lessons from Six Experiments in East Africa
with Fabregas, F., Kremer, M., Lowes, M., Zane, G.. *Working paper*. [\[link\]](#)

Data-driven Development: Essays on the Use of Mobile Phone Data and Information to Measure and Reduce Poverty.

UC Berkeley. ProQuest ID: On_berkeley_0028E_18396. Merritt ID: ark:/13030/m5pg6qbv. Retrieved from <https://escholarship.org/uc/item/1r672176> [\[link\]](#)

Predicting Poverty and Wealth from Mobile Phone Metadata

with Blumenstock, J.E., Cadamuro, G. (2015). *Science*, 350(6264), 1073-1076. doi: 10.1126/science.aac4420 [\[link\]](#)

PROJECTS

Intellagents: Adaptive experiments driven by human discretion

Use of Thompson Sampling for optimal case assignment based on the causal effect of human decision making on case outcomes.

<https://roboton.github.io/intellagents/>, <https://github.com/roboton/intellagents>

COVID-19 Comparisons using Bayesian Structural Time Series

Synthetic control approach comparing COVID-19 response across hundreds of jurisdictions around the world.

<http://covidcompare.org/>, <https://github.com/roboton/covid-compare>, <https://github.com/roboton/tscompare>

Multiagent: Visualizing Prosecutor Performance

Visualizing prosecutor performance on crime and punishment outcomes in the criminal justice system.

<https://shiny.ond3.com/multiagent>, <https://github.com/roboton/multiagent>

PATENTS

Auction-based advertising model for streaming media

Policy-based [media syndication and monetization](#)

[Selecting media advertisements](#) for presentation based on their predicted playtimes

Nowcasting

[E-commerce price index](#)

Mobile technology

[Saving battery on wireless connections](#) on mobile devices using internal motion detection

User panel tracking

System and method for [tracking network traffic of users](#) in a research panel

