

Patrick Staples

CONTACT INFORMATION

Website patrickstaples.com
Linkedin [linkedin.com/in/patrick-staples](https://www.linkedin.com/in/patrick-staples)
GitHub github.com/ctphoenix
Email patrickchristianstaples@gmail.com
Phone (801) 915-4243

EXPERIENCE

Compass Pathways, San Francisco, CA 2023 - present
Principal Data Scientist and Engineer

- Developing scalable AI agents with human-inspired psychological capacities
- Developing simulated patients and therapists in context of mental health
- Developing a general statistical method for aligning two set of timestamped intervals
- Designed a method for early detection of adverse outcomes given cost restraints

Alto Neuroscience, Los Altos, CA 2021 - 2023
VP, Data Science

- Liaised between data science, data quality, engineering, and product orgs
- Ran agile project management and led a team of > 10 data scientists
- Established causal inference methods: propensity and counterfactual modeling
- Derived a method fitting unconfounded supervised model

Migo Money, San Francisco, CA 2019 - 2021
Senior Data Scientist

- Created a method producing unsecured loan sequences that maximize customer LTV
- Replaced previous creditworthiness products, resulting in a net profitable loanbook
- Expanded customer base, offering tailored loans to a deeper customer pool

Mindstrong Health, Mountain View, CA 2018 - 2019
Data Scientist

- Productionized mental health biomarkers using smartphone keystroke data
- Derived a statistical technique for supervised and kernelized dimension reduction for longitudinal data; wrote a paper and open-source code for public use
- Led development of the company's core modeling and data science infrastructure

Harvard University, Boston, MA 2016 - 2018
Postdoctoral Fellow

- Built boilerplate codebase for storing, cleaning, and preprocessing raw sensor data
- Defined merge protocols between sensor data and highly heterogeneous clinical data
- Created pipelines for creating features informed by known biological mechanisms
- Translated high-level grant aims into tractable analyses and published papers
- Orchestrated lab-affiliated research between PIs, engineers, students, and medical professionals

HarvardX, Cambridge, MA 2016 - 2018
Course Content Creator: Using Python for Research

KLAS Research, Provo, UT 2009 - 2011
Statistician

EDUCATION

Harvard University, Department of Biostatistics, Boston, MA
Ph.D., Biostatistics, 2013-2016. Advisor: Jukka-Pekka Onnela, D.Sc.
Dissertation: On the Statistical Properties of Epidemics on Networks.

Harvard University, Department of Biostatistics, Boston, MA
M.A., Biostatistics, 2011-2013

Brigham Young University, Provo, UT
B.A., Mathematics, 2010-2011, *Summa cum laude*
B.A., Statistics, 2008-2010, *Summa cum laude*

TEACHING AND CONSULTING

Stanford University, Stanford, CA 2023 - Present

- Teaching a course on statistical inference, machine learning, and AI

LAMP Labs, Boston, MA 2018 - 2019

- Delivered an API for accessing digital phenotyping measurements of smartphone data, including mobility and social metrics
- Delivered a sleep estimation method using accelerometer data

UCSD, San Diego, CA 2013

- Delivered a method implementation and GUI for estimating clinical trial power while accounting for cluster structure in the presence of across-cluster interference

SELECTED PUBLICATIONS & CODE

H-index: 14

- **Staples P.**, Dougherty R., *et al.* “Building virtual patients for training mental health professionals.” 2025. [Preprint](#); [Code](#).
- Senders J, **Staples P.**, *et al.* “An online calculator for the prediction of survival in glioblastoma patients using classical statistics and machine learning.” *Neurosurgery* 2020. [App](#).
- **Staples P.**, Dagum P., *et al.* “Supervised kernel PCA for longitudinal data.” 2018. [Preprint](#); [Code](#).
- **Staples P.**,* Torous J,* Onnela JP., *et al.* “A comparison of passive and active estimates of sleep in a cohort with schizophrenia.” *NPJ Schizophrenia*. 2017.
- Balzer L., **Staples P.**, *et al.* “Using a network-based approach and targeted maximum likelihood estimation to evaluate the effect of adding pre-exposure prophylaxis to an ongoing test-and-treat trial.” *Clinical Trials* 2017. [Code](#).
- Bohren A, **Staples P.**, *et al.* “Power calculation software for randomized saturation experiments.” *World Bank*, 2016. [App](#).

SKILLS

AI	AI agent development, prompt engineering, novel RAG variants
Code	Python (advanced), R, C/C++, C#, \LaTeX
Data Science	ML ops, feature engineering, predictive modeling, anomaly detection
Statistics	Causal inference, high-dimensional and longitudinal methods, epidemiology, network science