ADAM KAPELNER

516·435·6795 ⋄ kapelner@qc.cuny.edu ⋄ (updated: February 19, 2024)

EDUCATION

Wharton School of the University of Pennsylvania May 2014
Ph.D. in Statistics advised by Abba Krieger and Edward George

Wharton School of the University of Pennsylvania May 2012
A.M. in Statistics advised by Dean Foster

Stanford University June 2006
B.S. in Mathematical & Computational Science (minors in Physics & Economics)

ACADEMIC EMPLOYMENT

Queens College
Associate Professor of Mathematics Aug 2021 - present
Director, Undergraduate Data Science and Statistics Program Aug 2019 - present
Assistant Professor of Mathematics Aug 2014 - Jul 2021

The Technion, Israel Institute of Technology Jul 2018 - present
Visiting Scholor, Faculty of Industrial Engineering & Management

RESEARCH INTERESTS

Experimental Design, Randomization, Data Science, Machine Learning, Statistical Software, Crowdsourced Social Science Experiments, Biomed Applications, Educational Tech

PATENTS

Systems and Methods for Treatment Selection #11605463 Granted Mar 14, 2023 (with Armstrong, Caitrin; Benrimoh, David; Fratila, Robert; Kleinerman, Akiva; Mehltretter, Joseph; and Rosenfeld, Ariel)

PUBLICATIONS

citations: ≈3,300; h-index: 18, i10-index: 24 (see Google Scholar profile)

Statistical Theory & Methodology

- Azriel, D., Krieger, A. & Kapelner, A. The Pairwise Matching Design is Optimal under Extreme Noise and Extreme Assignments *in review at Canadian Journal of Statistics, Arxiv* (link)
- Azriel, D., Krieger, A. & Kapelner, A. The Optimality of Blocking Designs in Equally and Unequally Allocated Randomized Experiments with General Response *in review at Journal of Causal Inference, Arxiv* (link)

- Kapelner, A., Krieger, A. & Azriel, D. (2023) The Role of Pairwise Matching in Experimental Design for an Incidence Outcome *Australian & New Zealand Journal of Statistics* 65 (4), 379–93 (link)
- Krieger, A., Azriel, D., Sklar, M. & Kapelner, A. (2022) Improving the Power of the Randomization Test *Communications in Statistics — Theory and Methods* (link)
- Krieger, A., Azriel, D. & Kapelner, A. (2021) Better Experimental Design by Hybridizing Binary Matching with Imbalance Optimization *Canadian Journal of Statistics* (link)
- Kapelner, A., Sklar M., Krieger, A., & Azriel, D. (2021) Optimal Rerandomization via a Criterion that Provides Insurance Against Failed Experiments. *Journal of Statistical Planning and Inference* 219, 63–84 (link)
- Kapelner, A. & Krieger, A. (2021) A Matching Procedure for Sequential Experiments that Iteratively Learns which Covariates Improve Power *Biometrics* (link)
- Kapelner, A., Bleich, J., Levine, A., Cohen, Z. D., DeRubeis, R. J. & Berk, R. A. (2021) Evaluating the Effectiveness of Personalized Medicine with Software. Frontiers in Big Data — Medicine and Public Health 4 (8), 1–19 (link)
- Kapelner, A., Shalit, U., Krieger, A., Sklar, M. & Azriel, D. (2021) Harmonizing Optimized Designs with Classic Randomization in Experiments. *The American Statistician* 75 (2), 195–206 (link)
- Blanford, W. J., Jofat, D. & Kapelner, A. (2020). Solution Density Models as Functions of Sodium Chloride, Hydroxypropyl-β-cyclodextrin, and Temperature (278.15–333.15 K) via Progressive Linear and Stepwise Regression. *Journal of Chemical & Engineering Data* 65 (10), 4735–4750 (link)
- Krieger, A., Azriel, D. & Kapelner, A. (2019) Nearly Random Designs with Greatly Improved Balance. Biometrika 106 (3), 695–70 (link)
- Kapelner, A., Krieger, A. & Blanford, W. J. (2016). Optimal Experimental Designs for Estimating Henry's Law Constants via the Method of Phase Ratio Variation. *Journal of Chromatography A* 1468, 183–191 (link)
- Kapelner, A. & Krieger, A. (2014). Matching on-the-fly in Sequential Experiments for Higher Power and Efficiency. *Biometrics* 70 (2), 378–388 (link)
- Azriel, D., Krieger, A. & Kapelner, A. Optimal Experimental Designs for Extreme Noise and Allocations *in preparation for Scandinavian Journal of Statistics*
- Krieger, A., Azriel, D. & Kapelner, A. Greedy Pair Switching for High-Performance Equal Groups Clustering *in preparation for Biometrika*

Machine Learning and Data Science

- Kapelner, A. & Bleich, J. (2016). `bartMachine`: Machine Learning with Bayesian Additive Regression Trees. *Journal of Statistical Software* 70 (4) (link)
- Kapelner, A. & Bleich, J. (2014). Prediction with Missing Data via Bayesian Additive Regression Trees. *Canadian Journal of Statistics* 43 (2) 224–239 (link)
- Bleich, J., Kapelner, A., George, E. I. & Jensen, S. T. (2014). Variable Selection Inference for Bayesian Additive Regression Trees. *Annals of Applied Statistics* 8 (3) 1750–1781 (link)

- Goldstein, A., Kapelner, A., Bleich, J. & Pitkin, E. (2014). Peeking Inside the Black Box: Visualizing Statistical Learning with Plots of Individual Conditional Expectation. *Journal of Computational & Graphical Statistics* 24(1), 44–65 (link)
- Bleich, J & Kapelner, A. (2014) Bayesian Additive Regression Trees With Parametric Models of Heteroskedasticity. *Arxiv* (link)
- Berk, R., Bleich, J., Kapelner, A., Henderson, J., Barnes, G., Kurtz, E. (2014) Using Regression Kernels to Forecast A Failure to Appear in Court *Arxiv* (link)
- Antonaros, P., Kapelner, A. & Hanusa, C. Modeling the Artistic Beauty of Mathematical Art via an Ensemble of Deep Learning and a Random Forest *in prepartion for the Journal of Mathematics and the Arts*

Crowdsourcing and Social Science

- Weinberg, D. B. & Kapelner, A. Do book consumers discriminate against Black, female, or young authors? *PLoS One* 17(6): e0267537 (link)
- Kapelner, A. & Weinberg, D. B. (2019) Do Readers Judge Books by Author Gender? Results from a Randomized Experiment. *Socius* 5 (link)
- Weinberg, D. B. & Kapelner, A. (2018) Comparing gender discrimination and inequality in indie and traditional publishing. *PLoS One* 13 (4) e0195298 (link)
- Schwartz, H. A., Eichstaedt, J., Blanco, E., Agrawal, M., Dziurzyński, L., Kern, M. L., Kapelner, A., Park, G., Jha, S., Stillwell, D., Kosinski, M. & Ungar, L. H. (2016) Predicting individual well-being through the language of social media. *Biocomputing: Proceedings of the Pacific Symposium* 516–527 (link)
- Chandler, D. & Kapelner, A. (2013) Breaking Monotony with Meaning: Motivation in Crowdsourcing Markets. *Journal of Economic Behavior & Organization*, 90: 123-133 (link)
- Kapelner, A., Kaliannan, K., Schwartz, H. A., Ungar, L. H. & Foster, D. P. (2012) New Insights from Coarse Word Sense Disambiguation in the Crowd. *CoLING* (link)
- Kapelner, A. & Chandler, D. (2010) Preventing Satisficing in Online Surveys. *Proceedings of CrowdConf* (link)

Education Applications

- Adlof, A., Baron, L. S., Scoggins, J., Kapelner, A., McKeown, M. G., Perfetti, C., Miller, E., Soterwood, J. & Petscher, Y. (2019) Accelerating Adolescent Vocabulary Growth: Development of an Individualized, Web-based, Vocabulary Instruction Program. Language, Speech, and Hearing Services in Schools. *Language, Speech, and Hearing Services in Schools* 50 (4): 579-595 (link)
- Kapelner, A., Nessaiver, S., Soterwood, J. & Adlof, A. (2018) Predicting Contextual Informativeness for Vocabulary Learning. *IEEE Transactions on Learning Technologies* 11(1) 13-26 (link)

Biomedical Applications

- Benrimoh, D., Kleinerman, A., Furukawa, A. T., Reynolds III, C. F., Lenze, E. J., Karp, J., Mulsant, B., Armstrong, C., Mehltretter, J., Fratila, R., Perlman, K., Israel,

S., Popescu, C., Golden, G., Qassim, S., Anacleto, A., Tanguay-Sela, M., Kapelner, A. Rosenfeld, A., Turecki, G. (2023) Towards Outcome-Driven Patient Subgroups: A Machine Learning Analysis Across Six Depression Treatment Studies. The American Journal of Geriatric Psychiatry (link)

- Kleinerman, A., Rosenfeld, A., Benrimoh, D., Fratila, R., Armstrong, C., Mehltretter, J., Shneider, E., Yaniv-Rosenfeld, A., Karp, J., Reynolds, C.F., Turecki, G & Kapelner, A. (2021) Treatment selection using prototyping in latent-space with application to depression treatment PLOS ONE 16(11): e0258400 (link)
- Benrimoh, D., Israel, S., Fratila, R., Armstrong, C., Perlman, K., Rosenfeld, A. & Kapelner, A (2021) Editorial: ML and AI Safety, Effectiveness and Explainability in Healthcare. Frontiers in Big Data 4, 1–54 (link)
- Bleich, J., Cole, B., Kapelner, A., Baillie, C. A., Gupta, R., Hanish, A., Calgua, E., Umscheid, C. & Berk, R. (2021) Using Random Forests with Asymmetric Costs to Predict Hospital Readmissions *medrxiv* (link)
- Mehltretter, J., Fratila, R., Benrimoh, D.A., Kapelner, A., Perlman, K., Snook, E., Israel, S., Miresco, M. & Turecki, G. (2020) Differential Treatment Benefit Prediction For Treatment Selection in Depression: A Deep Learning Analysis of STAR*D and CO-MED Data *Computational Psychiatry* 4, 61–75 (link)
- Clarke, G. P. & Kapelner, A. (2020) The BART Formula for Safe Machine-Learning Based IOL Predictions. *Frontiers in Medicine* 3 (46) 1–10 (link)
- Schoeler, N., Bell, G., Yuen, A., Kapelner, A., Heales, S. J. R., Cross, J. H. & Sisodiya, S. (2017) Acetyl carnitine and association with response to ketogenic dietary therapies. *Epilepsia* 58 (5), 893-900 (link)
- Kapelner, A. & Vorsanger, M. (2015) Starvation of Cancer via Induced Ketogenesis and Severe Hypoglycemia. *Medical Hypotheses*, 84(3): 162–168 (link)
- Chang, A. Y., Bhattacharya, N., Mu, J., Setiadi, A. F., Carcamo-Cavazos, V., Lee, G. H.; Simons, D. L., Yadegarynia, S., Hemati, K., Kapelner, A., Zheng, M., Krag, D. N., Schwartz, E. J., Chen, D. Z. & Lee, P. P. (2013) Spatial organization of dendritic cells within tumor draining lymph nodes impacts clinical outcome in breast cancer patients. *Journal of translational medicine*, 11(1): 242 (link)
- Setiadi, A. F.; Ray, N. C., Kohrt, H. E., Kapelner, A., Carcamo-Cavazos, V., Levic, E. B., Yadegarynia, S., van der Loos, C. M., Schwartz, E. J., Holmes, S. & Lee, P. P. (2010) Quantitative, architectural analysis of immune cell subsets in tumor-draining lymph nodes from breast cancer patients and healthy lymph nodes. *PloS one*, 5(8): e12420 (link)
- Holmes, S., Kapelner, A. & Lee, P. P. (2009) An interactive java statistical image segmentation system: Gemident. *Journal of Statistical Software*, 30(10): 1–20 (link)
- Kapelner, A., Lee, P. P. & Holmes, S. (2007) An interactive statistical image segmentation and visualization system. *in proceedings of IEEE, Medivis* (link)

GRANTS AWARDED

Air Force Research Laboratory 2022-2026
Understanding Who's Vulnerable and Why?, $3,073,000 Principal Investigator

Israel-USA Binational Science Foundation (BSF) 2019-2024
More Powerful Experiments via Harmonizing Classic Randomization with Modern Optimization, 2018112, $167,000 Co-PI

PSC CUNY 2019-2020
A Natural Field Experiment on Race and Gender Discrimination in the Gig Economy, TRADB-50-65, $6,000

MQ Foundation May 2017 - Jul 2018
The Stratified Medicine Approaches for Treatment Selection Mental Health Prediction Tournament, $3,200 • Winner of tournament

PSC CUNY 2017-2018
Optimal Experimentation: Trading Randomization for Balance, TRADA-48-469, $3,500

MQ's Psy-IMPACT Nov 2014 - Dec 2018
• Served as an expert consultant and investigator to the grant

U.S Dept. of Education, Inst. of Educational Science Sept 2013 - Aug 2018
Grant #R305A130467, $1,500,000, PI: Suzanne Adlof, University of South Carolina. I cowrote and served as the expert consultant to the grant.

GRANTS APPLIED

ONR N00014-20-S-F005 (applied 2020), $750K Co-PI 2021 - 2024
Data Science as Pathway to Naval Careers for Diverse Students at CUNY Queens College

NSF PD18-1269 (applied 2018), $500K Co-PI 2019 - 2023
More Powerful Experiments via Harmonizing Classic Randomization with Optimization

PSC CUNY (applied 2015) TRADA-47-330, $2500 2016
Demonstrations of Inference for Personalized Medicine Treatment Models

NSF Environmental Engineering program PD 20-1440, $422K 2023 - 2026
Impact, Analysis, and Advanced Modeling of Miscible Displacement Transport Studies of Monoaromatic Compounds in Sandstone Cores

HONORS AND AWARDS

President's Award for Excellence in Teaching Mar 2023
Certificate for Highly Cited Research in the Journal of Economic Behavior and Organization Jan 2017
National Science Foundation Graduate Research Fellowship May 2010 - April 2013
J. Parker Bursk Memorial Award for Excellence in Research Dec 2013
Donald S. Murray Award for Excellence in Teaching Dec 2012
Intel Science Talent Search Semifinalist Jan 2002

FORMAL PRESENTATIONS AND TALKS

Kapelner A., The Optimality of Pairwise Matching and Blocking Randomizations under Extreme Noise & Assignments, UCSD, Statistics and Data Science Colloquium Jan 2024
Kapelner A., The Role of Pairwise Matching in Experimental Design for an Incidence Outcome, University of Memphis, ICODOE '23 May 2023
Kapelner A., The Role of Pairwise Matching in Experimental Design for an Incidence Outcome, Queens College, CSCI Seminar Sept 2022

Kapelner A., Harmonizing Fully Optimal Designs with Classic Randomization in Experiments, Harvard University, Applied Statistics Lecture Series Feb 2020
Kapelner A., Harmonizing Fully Optimal Designs with Classic Randomization in Experiments, Design & Analysis of Experiments Conference Oct 2019
Kapelner A., Harmonizing Fully Optimal Designs with Classic Randomization in Experiments, Atlantic Causal Inference Conference May 2019
Kapelner A., Harmonizing Fully Optimal Designs with Classic Randomization in Experiments, Wharton Statistics Faculty Seminar Mar 2019
Kapelner A., Harmonizing Fully Optimal Designs with Classic Randomization in Experiments, Economics Dept Seminar, Queens College Feb 2019
Kapelner A., Harmonizing Fully Optimal Designs with Classic Randomization in Experiments, *EMR-IBS, '18, Jerusalem, Israel* Dec 2018
Kapelner A., Harmonizing Fully Optimal Designs with Classic Randomization in Experiments, Haifa University Statistics Faculty Seminar Oct 2018
Kapelner A., Harmonizing Fully Optimal Designs with Classic Randomization in Experiments, Tel Aviv University Statistics Faculty Seminar Oct 2018
Kapelner A., Harmonizing Fully Optimal Designs with Classic Randomization in Experiments, Hebrew University of Jerusalem Statistics Faculty Seminar Oct 2018
Kapelner A., Harmonizing Fully Optimal Designs with Classic Randomization in Experiments, Weizmann Institute of Science Statistics Faculty Seminar Oct 2018
Kapelner A., Personalized Medicine Inference via the R Package PTE, Industrial Engineering and Management Seminar, the Technion July 2018
Kapelner A., Personalized Medicine Modeling with Survival and Incidence Endpoints *TSIL, '18, London, England* Jun, 2018
Kapelner A., Personalized Medicine Inference and Machine Learning via the R Packages PTE & YARF *TSIL 1/2 Day Workshop, '18, London, England* Jun, 2018
Kapelner, A., Weighted Matching on-the-fly: Improved Sequential Allocation with Higher Power and Efficiency *SAE '18 Shanghai, China* Jun, 2018
Kapelner A., Weighted Matching on-the-fly: Improved Sequential Allocation with Higher Power and Efficiency, Technical Seminar, Amazon Inc. June 2018
Kapelner, A., Starving Cancer through Induced Ketogenesis *QC Biology Symposium* Jan, 2018
Kapelner, A., YARF: A Fully Customizable Non-Parametric Regression Toolbox *The Technion, seminar series* Jul, 2017
Kapelner, A., Weighted Matching on-the-fly: Improved Sequential Allocation with Higher Power and Efficiency *The 6th International Workshop in Sequential Methodologies (IWSM '17 Rouen, France)* Jun, 2017
Kapelner, A., Predicting Contextual Informativeness for Vocabulary Learning *Kasisto, Inc. seminar series* Nov, 2016
Kapelner, A., Optimal experimental designs for estimating Henry's law constants via the phase ratio method *ACS National Meeting* Aug, 2016
Clarke, G., Hill, W., Kapelner, A. Data-Driven IOL Calculations *Amer. Society of Cataract and Refractive Surgeons Annual Meeting* May, 2016
Kapelner, A., Inference for Personalized Medicine Models *UPenn Treatment Lab* June, 2016

Kapelner, A., Better Experiments on MTurk? NYU Statistics Seminar May, 2016
Jensen, S., Kapelner, A., Variable Selection with Bayesian Additive Regression Trees. ENAR Mar, 2015
Kapelner, A., Experiments via Crowdsourcing: A New Platform for Social Science Research? Economics Dept Seminar, Queens College Feb 2015
Kapelner, A., Better Randomization via Greedy Pair Switching *IMS China* Jul, 2015
Kapelner, A., Ungar L. Crowdsourcing for Statisticians. *JSM*, Continuing Education Course Aug 2013
Kapelner, A., Chandler D. Preventing Satisficing in Online Surveys. *CrowdConf* Oct 2010

INFORMAL PRESENTATIONS AND TALKS

Episode 109 - Experimental Design *Local Max (Data Science Podcast)* Mar 9, 2020
The Data Science & Statistics Mathematics Major Option at QC *NYC Tech Talent Pipeline Conference* May 14, 2018
Predicting Informativeness from Context *QC Math Club* Feb 5, 2018

TEACHING EXPERIENCE

Queens College, City University of New York

Math 342W/642/RM742 (Data Science / Machine Learning Fund., 6cr)	Jan 2018 - *
Math 340/640 (Probability Theory for Data Science, 4cr)	Aug 2023 - *
Math 341/641 (Statistical Theory for Data Science, 4cr)	Aug 2023 - *
Math 343/643 (Computational Statistics for Data Science, 3cr)	Jan 2024 - *
Math 369/690.3 (Statistical Inference, 3cr)	Aug 2020 - Dec 2021 *
Math 368/621 (Advanced Probability, 3cr)	Aug 2017 - Dec 2021 *
Math 341/650.3 (Bayesian Modeling, 3cr)	Feb 2016 - May 2022 *
Math 241 (Probability and Statistics, 3cr)	Aug 2014 - Dec 2021

The Wharton School of the University of Pennsylvania

Stat 422/722 (Predictive Analytics)	Jan 2017 - Feb 2017 *
Stat 101 (Probability and Statistics)	May 2011 - July 2011
Teaching Assistant for Stat 101 (Probability and Statistics) and Statistics 102 (Linear Regression)	Sept 2009 - June 2010
Teaching Assistant for Stat 613 (Required Statistics course for MBA students)	Sept 2013 - Dec 2013
Teaching Assistant for Stat 112 (Statistical Inference)	Jan 2014 - Jun 2014

* New course developed

UNDERGRADUATE PROGRAMS DEVELOPED

Queens College, City University of New York
Data Science & Statistics Option for the BA in Mathematics

(with Chris Hanusa and Alan Sultan) Sep 2018 - present
Actuarial Studies Track in the MA in Risk Management
(with Cara Marshall) Jan 2018 - present
Data Science & Statistics Speaker Series Feb 2019 - present

GRADUATE STUDENT MENTORING EXPERIENCE

Studies in Predicting Monotonic Breakout Curves using Machine Learning
Kennly Weerasinghe (Masters thesis) Spring, 2021 - Summer, 2022

UNDERGRADUATE STUDENT MENTORING EXPERIENCE

Using Convolutional Neural Nets for Predicting Digital Art Quality
Peter Antonaros Summer, 2022 - present

Studies in Applications of Predictive Analytics to Social Media Phenomena
Namisha Singh (Honors thesis) Winter, 2021 - Spring, 2022

Studies in Missing Data in Random Forests
Abhinav Patil Summer, 2020 - Fall, 2021

An Algorithm for Automatic Convergence of Random Forests
Rebecca Horowitz Summer, 2020

Studies in Optimal Experimental Design
Abhinav Patil Spring, 2020

A Nonparametric Bayesian Model for Extreme Events
Bracha Blau Fall, 2018

Studies in Fully Customizable Tree Models
Ashok Rao Spring, 2018

Studies in Optimal Experimental Design
Bracha Blau Spring, 2018

A Nonparametric Bayesian Model for Extreme Events
Evangeline Spzylka Summer, 2017 - Spring, 2018

Personalized Medicine Models for Survival
Alina Levine Summer, 2016 - Spring, 2018
and Xin Ling Luang (local HS student) Summer, 2016

Deep Learning for Image Segmentation
Christian Colon and Stefan Hernandez Spring, 2016 - Spring, 2017

Predicting Congressmens' Party Affiliation
Savvas Tjortjoglou Spring, 2016

Web Application Engineering for Social Science Experimentation
Rikki Katz (Honors thesis) Spring, 2015

Studies in Real Analysis
Elliot Gangaram — Spring, 2015

DEPARTMENTAL SERVICE

Position	**dates**
Data Science & Statistics Option Advisor	9/19-present
Coaching and Interviewing Adjunt Instructors	9/19-present
Hiring Committee	9/17-present
Mathematics Minor Advisor	1/17-present
Mathematics Curriculum Committee	6/16-present
Learning Outcomes Committee	1/16-present
Faculty Development Committee	1/16-present

COLLEGE SERVICE

Position	**dates**
Academic Senate	6/16-3/23
CUNY Office of Research - Faculty Advisory Council	12/22-present

PROFESSIONAL SERVICE (REVIEW WORK)

(see Web of Science profile)

Journal (or Organization)	**Year**
Journal of the American Statistical Association	2023
Statistics in Medicine	2023
Journal of the American Statistical Association	2022
Statistical Science	2022
Statistics in Medicine	2022
Computational Statistics & Data Analysis	2022
Journal of the American Statistical Association	2021
PSC CUNY Grant for Statistics Research	2021
Computational Statistics & Data Analysis	2021
Journal of Agricultural, Biological, and Environmental Statistics	2021
Open Statistics	2020
INFORMS Journal on Computing	2020
International Statistical Review	2020
Biometrika	2019
Journal of the American Statistical Association	2019
PSC CUNY Grant for Statistics Research	2019
Annals of Applied Statistics	2019
PLoS One	2019
Journal of Educational & Behavioral Statistics	2018
Neural Networks	2018
IEEE Access	2018
PLoS One	2018

The R Journal	2018
PSC CUNY Grant for Statistics Research	2018
Journal of the American Statistical Association	2017
Statistical Analysis and Data Mining	2017
PSC CUNY Grant for Statistics Research	2017
PLoS One	2016
The R Journal	2016
Statistical Analysis and Data Mining	2016
International Journal of Approximate Reasoning	2016
Journal of the Royal Statistical Society (Series B)	2015
Statistics in Medicine	2015
Bayesian Analysis	2014
Medical Hypothesis	2014
Journal of Cancer Research & Therapy	2014
Annals of Applied Statistics	2013
Transactions of the Association for Computational Linguistics	2013
National Science Foundation	2010

INDUSTRY EXPERIENCE

Data Science Private Consulting June 2014 - Present

- Prediction modeling, data mining, statistical testing for a variety of clients from tech to real estate to finance e.g. Tesorio, Rubinstein Partners, Obsidian Insurance

Coatue, Quant Fund May 2019 - August 2019
Data Scientist *New York, NY*

- Model (or "signal") creation for algorithm trading, optimization of trading algorithm

DictionarySquared, Inc. April 2010 - Dec 2018
Founder & CTO *San Francisco, CA*

- Conceived and engineered a web app that teaches vocabulary via contextual snippets
- Wharton Business Plan Semifinalist Winner
- Applied and received federal grant money for research (see Grants section)

Eventbrite, Inc. April 2007- Aug 2007
Software Engineer *San Francisco, CA*

- First engineer. Designed and engineered portions of their web platform.

Stanford University, Lab of Peter Lee June 2005 - Mar 2007
Staff Scientist *Stanford, CA*

- Conceived and engineered software that finds objects in images, used to find cells in microscopic images. Uses Java-`R` programming, Random Forests and image processing

OPEN SOURCE SOFTWARE ON GITHUB

61 ★ 25 ⑂ R Package: bartMachine A flexible statistical learning suite 252K
34 ★ 3 ⑂ R Package: ICEbox Visualization that explain how ML models work 72K
6 ★ 4 ⑂ Java JAR: GemIdent Finds objects in images using machine learning
1 ★ R Package: PTE Inference for personalized medicine models 33K
Java JAR: GemVident Finds objects in videos using machine learning
2 ⑂ R Package: GreedyExperimentalDesign Better experimental designs 27K
1 ★ R Package: CovBalAndRandExpDes Optimal rerandomization designs
R Package: SeqExpMatch High-powered matched experimental designs 5K
3 ⑂ R Package: YARF A highly customizable predictive modeling suite
R Package: optDesignSlopeInt Optimal designs for slope-to-intercept
1 ★ 1 ⑂ R Package: fastLogisticRegressionWrap Fast Inference for Logistic Regression

OTHER SOFTWARE

`dictionarysquaredresearch.sc.edu` Teaches high school students vocabulary
`gradesly.com` Gives students transparency, helps professors administer courses
`fireplacetorah.com` Automatic student pair-matching for learning texts

TECHNICAL STRENGTHS

Software Languages `R, Java, Ruby on Rails, C++, Python, HTML/CSS/JS`
R Skills `ggplot2, dplyr, data.table, mlr3, rJava, Rcpp, Eigen` most ML packages
Other Skills `git, postgreSQL, MySQL, Linux, Gurobi, Stan`, twilio messaging and voice APIs, grid and cloud computing, simulation, AWS