Nikolaos Ignatiadis - CV

Contact Details

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Research Interests

I am interested in the development of interpretable statistical methods, accompanied by robust software implementations, for the analysis of datasets generated from modern, high-throughput technologies. From a statistical perspective, this interest encompasses multiple testing and Empirical Bayes inference in the presence of contextual side-information.

Education

Stanford University — Stanford, California, U.S.A.
Ph.D. in Statistics. (GPA 4.2+) — 09/2016 – present
Successful completion of qualifying exams.
Thesis Advisor: Stefan Wager

Heidelberg University — Heidelberg, Germany
- **M.Sc. Scientific Computing**, Grade 1.0 — 2015 - 2016
- **B.Sc. Mathematics**, Grade 1.0 with *distinction* — 2011 - 2015
- **B.Sc. Molecular Biotechnology**, Grade 1.0 — 2010 - 2013

The American College of Greece — Athens, Greece
Lykio with Apolytirio Eniaiou Lykiou — 2010
Valedictorian

Preprints

1. Eckles, D., Ignatiadis, N., Wager, S. and Wu, H. (2020+). **Noise-Induced Randomization in Regression Discontinuity Designs.** arXiv:2004.09458.
2. Ignatiadis, N. and Wager, S. (2019+). **Confidence Intervals for Nonparametric Empirical Bayes Analysis.** arXiv:1902.02774.
3. Ignatiadis, N., Saha, S., Sun D. L. and Muralidharan, O. (2019+). **Empirical Bayes mean estimation with nonparametric errors via order statistic regression.** arXiv:1911.05970.
4. Ignatiadis, N. and Huber, W. (2018+). **Covariate powered cross-weighted multiple testing.** arXiv:1701.05179.

Conference proceedings

5. Ignatiadis, N. and Wager, S. (2019). **Covariate-Powered Empirical Bayes Estimation.** Advances in Neural Information Processing Systems 32 (NeurIPS 2019)

Journal Publications

6. Karacosta, L. G., Anchang, B., Ignatiadis, N., *et al.* (2019). **Mapping lung cancer epithelial-mesenchymal transition states and trajectories with single-cell resolution.** Nature communications, 1010, 5887.
7. Ignatiadis, N., Klaus, B., Zaugg, J. B. and Huber, W. (2016). **Data-driven hypothesis weighting increases detection power in genome-scale multiple testing.** Nature methods, 13(7), 577-580.
8. Beer, R., Herbst, K., Ignatiadis, N., Kats, I., *et al.* (2014). **Creating functional engineered variants of the single-module non-ribosomal peptide synthetase IndC by T domain exchange.** Molecular BioSystems, 10(7), 1709-1718.

Talks and Presentations

1. **Blue seminar at the European Molecular Biology Laboratory** — January 2020
European Molecular Biology Laboratory (EMBL), Heidelberg, Germany
Invited talk – Covariate-Powered Empirical Bayes Estimation.
2. **11th International Conference on Multiple Comparison Procedures** — December 2019
National Taiwan University (NTU), Taipei, Taiwan
Talk – Covariate-Powered Empirical Bayes Estimation.

3. **Atlantic Causal Inference Conference** May 2019
   McGill University, Montreal, Canada
   Invited talk – Bias-Aware Confidence Intervals for Empirical Bayes Estimation.
4. **Statistics Industrial Affiliates Conference** February 2019
   Stanford University, California, USA
   Contributed talk – Covariate powered cross-weighted multiple testing.
5. **Workshop: Post-selection Inference and Multiple Testing** February 2018
   Institut de Mathématiques de Toulouse, France
   Invited talk – Covariate-powered cross-weighted multiple testing with FDR Control.
6. **JuliaCon**, Berkeley (`http://www.youtube.com/watch?v=R8NEfWZAVmw`) June 2017
   Lightning talk – MultipleTesting.jl: Simultaneous Statistical Inference in Julia.
7. **International Symposium on Synthetic Biology** December 2013
   German Cancer Research Center, Heidelberg, Germany
   Presentation about Team Heidelberg's iGEM project.

Internships

Data science intern at Google AdsMetrics, Mountain View, USA Summer 2019
I developed an automated empirical Bayes method that estimates means by instead solving a supervised prediction problem and applied the method to predict changes in cost-per-click and click-through-rate for each advertiser in a large-scale experiment.

Teaching

Teaching Assistant (TA) at Stanford

STATS 361: Causal Inference .	Spring 2020
STATS 305B: Applied Statistics II .	Winter 2020
STATS 315A: Modern Applied Statistics: Learning.	Winter 2019
STATS 300A: Theory of Statistics I.	Fall 2018
STATS 366 (BIOS 221): Modern Statistics for Modern Biology.	Summer 2017 & 2018, Fall 2019
STATS 218: Introduction to Stochastic Processes II.	Spring 2018
STATS 290: Computing for Data Science.	Winter 2018
STATS 305A: Introduction to Statistical Modeling.	Fall 2017
STATS 191: Introduction to Applied Statistics.	Winter 2017
STATS 141 (BIOS 141): Biostatistics.	Fall 2016

Trainer
Introductory Course: Statistical Bioinformatics using R and Bioconductor October 2015
EMBL (European Molecular Biology Laboratory), Heidelberg, Germany

Professional Service

Journal peer review
Annals of Statistics, Bernoulli, Bioinformatics, Biometrics, Biometrika, Electronic Journal of Statistics, Journal of the American Statistical Association, PeerJ, Statistical Science (`https://publons.com/author/1470395`)

Conference peer review
AISTATS 2021

Scholarships

Deutschlandstipendium 2011-2013
A scholarship for talented and high-achieving students at public and state recognised institutions of higher education in Germany supported by the German Federal Government.

Awards and Honors

Departmental Teaching Assistant Award, Statistics Department, Stanford June 2018

Grand Prize Winner & Best Foundational Advance in the **iGEM** November 2013
(international Genetically Engineered Machine) competition with Team Heidelberg, MIT.

Bronze medal in the International Biology Olympiad (**IBO**), Changwon, South Korea. July 2010

Rank 3 in the 6th National Biology Competition, Greece. May 2010

Rank 8 in the 8th European Competition of the Ancient Greek language. June 2009

Languages	**English** (Fluent), **German** (Native), **Greek** (Native)
Programming Languages	**R**, **Julia**, Python, C
Open-Source Software	**IHW** (`http://bioconductor.org/packages/IHW`) A R/Bioconductor package implementing the Independent Hypothesis Weighting method. **IHWpaper** (`http://bioconductor.org/packages/devel/data/experiment/html/IHWpaper.html`) A package reproducing all analyses for the Independent Hypothesis Weighting publications. **SmoothingSplines.jl** (`https://github.com/nignatiadis/SmoothingSplines.jl`) A statistical package for nonparametric regression via Smoothing Splines in Julia.