

**Daniel Pellatt**  
Economics Department  
University of California, San Diego

LATEST VERSION

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**CONTACT INFORMATION**

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**EDUCATION**

**UNIVERSITY OF CALIFORNIA, SAN DIEGO**, La Jolla, CA Expected 2022/2023 Academic Year  
**Ph.D. Candidate in Economics**  
**Committee:** Yixiao Sun (chair), Kaspar Wuthrich, Allan Timmermann, Richard Carson, Dimitris Politis

**UNIVERSITY OF UTAH**, Salt Lake City, UT 2015  
**MStat** (Master of Statistics), Math Department

**UNIVERSITY OF OREGON**, *College of Arts and Sciences*, Eugene, OR 2011  
**BS** Economics

**REFERENCES**

Yixiao Sun	UC San Diego	yisun@ucsd.edu
Kaspar Wuthrich	UC San Diego	kwuthrich@ucsd.edu
Allan Timmermann	UC San Diego	atimmermann@ucsd.edu

**FIELDS OF INTERESTS**

Econometrics

**PUBLICATIONS**

Pellatt, D. F., & Sun, Y. (2022). Asymptotic F test in regressions with observations collected at high frequency over long span. *Journal of Econometrics*. doi: [10.1016/j.jeconom.2022.10.007](https://doi.org/10.1016/j.jeconom.2022.10.007)

Aue A, Horvath L, Pellatt D. F. (2017) Functional generalized autoregressive conditional heteroscedasticity. *J. Time Ser. Anal*, 38: 3-21. doi: [10.1111/jtsa.12192](https://doi.org/10.1111/jtsa.12192)

**JOB MARKET PAPER**

**PAC-Bayesian Treatment Allocation Under Budget Constraints** [Link to Job Market Paper](#)

This paper considers the estimation of treatment assignment rules when the policy maker faces a general budget or resource constraint. Utilizing the PAC-Bayesian framework, we propose new treatment assignment rules that allow for flexible notions of treatment outcome, treatment cost, and a budget constraint. For example, the constraint setting allows for cost-savings, when the costs of non-treatment exceed those of treatment for a subpopulation, to be factored into the budget. It also accommodates simpler settings, such as quantity constraints, and doesn't require outcome responses and costs to have the same unit of measurement. Importantly, the approach accounts for settings where budget or resource limitations may preclude treating all that can benefit, where costs may vary with individual

characteristics, and where there may be uncertainty regarding the cost of treatment rules of interest. Despite the nomenclature, our theoretical analysis examines frequentist properties of the proposed rules. For stochastic rules that typically approach budget-penalized empirical welfare maximizing policies in larger samples, we derive non-asymptotic generalization bounds for the target population costs and sharp oracle-type inequalities that compare the rules' welfare regret to that of optimal policies in relevant budget categories. A closely related, non-stochastic, model aggregation treatment assignment rule is shown to inherit desirable attributes.

## **WORKING PAPER**

### **Binary Forecast and Decision Rules Via PAC-Bayesian Model Aggregation**

(Coauthored with Yixiao Sun)

We consider a PAC-Bayesian model aggregation approach to binary decision or forecast rules when different decision-outcome pairs may have asymmetric payoffs that can vary with observed covariates. The approach estimates a probability distribution over a class of models from which majority vote or stochastic decision rules can be derived. Adopting a utility-based measure of loss considered in (Granger and Machina, 2006), we show the PAC-Bayesian methodology is well suited to this setting. Non-asymptotic training sample bounds and oracle inequalities familiar in form to counterparts from the 0/1-loss literature are derived for the utility-based setting. The decision rules perform competitively in simulation experiments, achieving higher expected utility than several methods proposed in recent literature. The approach is also well suited to data-rich modeling environments; a constrained version of the learning algorithm produces utility-oriented decision rules with similarities to support vector machines.

## **HONORS AND AWARDS**

- UCSD Summer GSR Research Grant (2017)
- Nominated for Mathematics Student of the Year by the Statistics Committee of University of Utah's Math Department (2015)
- Departmental Honors in Economics, University of Oregon (2011)

## **TEACHING/RESEARCH ASSISTANCE EXPERIENCE**

Teaching Assistant/Reader at UC San Diego

UCSD, Teaching Assistant

Fall 2016 to present

Principles of Macroeconomics, Intermediate Microeconomics, Intermediate Econometrics

Research Assistant

UCSD, RA for Prof. Allan Timmermann

2018

Teaching Assistant at University of Utah

U of U, Teaching Assistant

August to December 2014

Applied Statistics R Programming Lab for Math 3070

## **RELEVANT WORK EXPERIENCE**

Statistical Consultant

Foldax Corporation

2018 to 2020

Duties: statistical consultation

0-15 hours annually, as needed

Senior Programmer/Analyst

December 2014 to July 2016

Department of Internal Medicine, University of Utah

Duties: Data management and analysis. Conducted statistical analysis on large epidemiologic and genomic datasets. Writing contributions for publications (see below). Analysis performed in R and SAS.

## **PUBLICATIONS IN CANCER EPIDEMIOLOGY (Related to Programmer/Analyst Work)**

Pellatt DF, Stevens JR, Wolff RK, et al. Expression Profiles of miRNA Subsets Distinguish Human Colorectal Carcinoma and Normal Colonic Mucosa. *Clin Transl Gastroenterol*. 2016;7(3):e152. Published 2016 Mar 10. doi:10.1038/ctg.2016.11

Slattery ML, Herrick JS, Pellatt DF, et al. MicroRNA profiles in colorectal carcinomas, adenomas and normal colonic mucosa: variations in miRNA expression and disease progression. *Carcinogenesis*. 2016;37(3):245-261. doi:10.1093/carcin/bgv249

Slattery ML, Pellatt DF, Mullany LE, Wolff RK, Herrick JS. Gene expression in colon cancer: A focus on tumor site and molecular phenotype. *Genes Chromosomes Cancer*. 2015;54(9):527-541. doi:10.1002/gcc.22265

Slattery ML, Herrick JS, Mullany LE, et al. Colorectal tumor molecular phenotype and miRNA: expression profiles and prognosis. *Mod Pathol*. 2016;29(8):915-927. doi:10.1038/modpathol.2016.73

Pellatt AJ, Slattery ML, Mullany LE, Wolff RK, Pellatt DF. Dietary intake alters gene expression in colon tissue: possible underlying mechanism for the influence of diet on disease. *Pharmacogenet Genomics*. 2016;26(6):294-306. doi:10.1097/FPC.0000000000000217

Slattery ML, Pellatt DF, Mullany LE, Wolff RK. Differential Gene Expression in Colon Tissue Associated With Diet, Lifestyle, and Related Oxidative Stress. *PLoS One*. 2015;10(7):e0134406. Published 2015 Jul 31. doi:10.1371/journal.pone.0134406

Slattery ML, Pellatt DF, Wolff RK, Lundgreen A. Genes, environment and gene expression in colon tissue: a pathway approach to determining functionality. *Int J Mol Epidemiol Genet*. 2016;7(1):45-57. Published 2016 Mar 23.

Slattery ML, Herrick JS, Pellatt DF, et al. Site-specific associations between miRNA expression and survival in colorectal cancer cases. *Oncotarget*. 2016;7(37):60193-60205. doi:10.18632/oncotarget.11173

Slattery ML, Wolff E, Hoffman MD, Pellatt DF, Milash B, Wolff RK. MicroRNAs and colon and rectal cancer: differential expression by tumor location and subtype. *Genes Chromosomes Cancer*. 2011;50(3):196-206. doi:10.1002/gcc.20844

## **OTHER INFORMATION**

**Citizenship(s):** United States and Canada (I have dual citizenship).

**Computer Skills:** R, MATLAB, some experience with SAS, LaTeX, Microsoft Office