

BOYAN DUAN

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EDUCATION

Carnegie Mellon University, Pittsburgh, USA

September 2016 - June 2021 (expected)

Ph.D. in Statistics

Department of Statistics & Data Science

University of Science and Technology of China, Hefei

September 2012 - June 2016

Bachelor of Statistics

School of the Gifted Young

University of Birmingham, UK

June 2015 - August 2015

Intern in Computer Science

RESEARCH INTERESTS

Adaptive sequential experiments

Human-in-the-loop interactive testing, Martingale, Reproducibility in science and technology

Hypothesis testing in dynamic settings

Multiple testing, Nonparametric hypothesis testing

SUBMISSION AND ONGOING PROJECTS

Interactive Martingale Tests for the Global Null [arXiv](#) (EJS, major revision)

Propose martingale analogs of classical global null tests; and

develop interactive tests that allow an analyst to modify the algorithm in a data-dependent manner.

Presented in the International Conference on Multiple Comparison Procedures (MCP) in Dec., 2019.

Familywise error rate control by interactive unmasking [arXiv](#) (ICML, 2020)

Develop interactive procedures for multiple testing with familywise error rate (FWER) control.

Which Wilcoxon test should we use? An interactive rank test and other alternatives
(submitted to Biometrical Journal, Special Issue on Multiple Comparisons Procedures)

Develop interactive tests to compare two/multiple samples provided with paired/unpaired data in a batch setting or dynamic settings where new subjects arrive as the test proceeds.

TEACHING ASSISTANT

In-class tutorials, office hours, and grading for the following classes:

36-218 Probability Theory for Computer Scientists (Head TA)

36-708 Statistical Methods in Machine Learning (PhD Level Class)

36-705 Intermediate Statistics (PhD Level Class)

46-927 Statistical Machine Learning II

36-410 Introduction to Probability Modeling

36-401 Modern Regression

36-217 Probability Theory and Random Processes

36-225 Introduction to Probability Theory