

# BOYAN DUAN

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## EDUCATION

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**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

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**Human-in-the-loop interactive testing**

Reproducibility in science and technology, Martingale

**Hypothesis testing in dynamic settings**

Multiple testing, Nonparametric hypothesis testing

## SUBMISSION AND ONGOING PROJECTS

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**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

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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