

# Man Fung (Heman) LEUNG

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## RESEARCH INTERESTS

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Time Series, Statistical Computing, Causal Inference, Machine Learning

## EDUCATION

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### University of Illinois Urbana-Champaign (UIUC)

Ph.D. in Statistics

May 2026 (Expected)

Thesis: TBD

Advisor: TBD

### The Chinese University of Hong Kong (CUHK)

M.Phil. in Risk Management Science

Jul 2021

Thesis: *A General Theory of Recursive Nonparametric Estimation*

Advisor: Kin Wai CHAN

B.Sc. in Quantitative Finance and Risk Management Science, First Class Honors

Jul 2019

Minor: Statistics

### University of California, Davis

Academic Exchange, UC Education Abroad Program

Sep – Dec 2017

## RESEARCH PROJECTS

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### On Self-Normalization in Online Problems

Jul 2021 – Present

With Kin Wai CHAN and Xiaofeng SHAO

*Ongoing*

- Designs truly online and mini-batch self-normalizers for general quantiles based on red-black tree
- Discusses applications in Bayesian analysis and statistical learning

### On Variance Estimation in Online Problems

Jan 2020 – Jun 2021

With Kin Wai CHAN

*Submitted*

- Proposed a general framework which generates estimators that uniformly dominate existing alternatives
- Derived the first set of sufficient conditions for  $O(1)$ -time or  $O(1)$ -space update
- Discussed applications in change point detection, Markov chain Monte Carlo and stochastic gradient method

### A Remark About a Learning Risk Lower Bound

Mar – Oct 2020

With Yiqi LIN and Nicolas WICKER

*Accepted*

- Corrected a learning risk lower bound in the non-realizable case appearing in some classical textbooks

## PRESENTATIONS

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### Simulation Run Length Control with Super-optimal Long-run Variance Estimators

Aug 2021

*JSM 2021*

*Speed*

### Diagnosing Learning Algorithms with Super-optimal Recursive Estimators

Dec 2020

*ICSA 2020 Applied Statistics Symposium*

*Poster*

## SOFTWARE

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**rsn**: an R package for Recursive Self-Normalization

Jul 2021 – Present

**rlaser**: an R package for Recursive Variance Estimation with LASER

Jan 2020 – Jun 2021

## TEACHING EXPERIENCE

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### Department of Statistics, UIUC

Aug 2021 – Present

*Teaching Assistant*

- Teaches and leads laboratory sessions in “Data Science Discovery” using Python

**Department of Statistics, CUHK**

Sep 2019 – May 2021

*Teaching Assistant*

- Selected as the teaching assistant for a postgraduate core course about Monte Carlo simulation
- Published diverse learning materials for both undergraduate and postgraduate on personal website
- Led and presented in reading group meetings on “Asymptotic Theory in Time Series” in 2020

**PROFESSIONAL SERVICE****Internship Network in the Mathematical Sciences**

Nov 2021; Feb 2022

*Statistical Methods Workshop; Project Workshop**Teaching Assistant***Hong Kong Statistical Society**

Jun 2020, Apr 2021

*Statistical Project Competition for Secondary School Students**Adjudicator***WORK EXPERIENCE****Institute of Software, Chinese Academy of Sciences**

Jun – Jul 2019

*Research Intern*

- Analyzed the ideas behind different cutting-edge image classification networks
- Designed a deep hand pose detection model with 98.6% validation accuracy using Python
- Extended the developed model to a web-based application with the other two teammates

**Department of Finance, CUHK**

Sep – Dec 2018

*Practicum*

- Explored and extracted high-level features from volatility surface using machine learning
- Hypothesized and tested the relationship between stock return and features in multiple models
- Developed a trading algorithm to profit from the tested relationship for Contrendian Limited

**Research Department, Hong Kong Monetary Authority**

Jun – Aug 2018

*Summer Intern*

- Investigated the impact of IPO on interbank and exchange rate markets using econometrics
- Optimized research procedures by employing automation and NLP with JavaScript and R
- Conducted preliminary analysis in a SME financing project collaborated with the FSB

**Risk Advisory, Ernst & Young Advisory Limited**

May – Aug 2017

*Summer Intern*

- Developed an impairment analytics tool in an IFRS 9 project for CCB (Asia) with VBA
- Designed and conducted statistical tests and adjustments on PD and LGD models
- Collaborated with other teams to prepare disclosure guidance and strategic advice

**SELECTED AWARDS**

Centaline Charity Fund Scholarship

Sep 2015 – Present

CLP Centenary Scholarship

Aug 2018

CUHK, Best Essay Award 2015-16, Silver Award

Mar 2017

Stockholm School of Economics in Riga, Peak Time 2016, 1st Runner-up

Apr 2016

The Standard, Liberal Studies Writing Competition 2013-14, 2nd Runner-up

Jul 2014

**COMMUNITY SERVICE**

Lee Woo Sing College, Green Life Ambassador

Sep 2015 – Jul 2019

Hong Kong BioBlitz 2015, Social Media Administrator

Sep – Dec 2015

**TECHNICAL SKILLS****Programming**

R, C/C++, Python, VBA, JavaScript, Java

**Publishing**

R Markdown, TeX/LaTeX, HTML 5

**Tools**

MS Office, Eviews, Bloomberg Terminal, GIMP