

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

M.Phil. in Risk Management Science

Jul 2021 (Expected)

Thesis: *A General Theory of Recursive Nonparametric Estimation*

Advisor: Kin Wai CHAN

CGPA: 4.00/4.00

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

Jul 2019

Minor: Statistics

CGPA: 3.76/4.00

### University of California, Davis

Academic Exchange, UC Education Abroad Program

Sep – Dec 2017

## RESEARCH PROJECTS

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**General and Super-optimal Recursive Estimators of Long-run Variance** Jan 2020 – Present  
*Supervised by Kin Wai CHAN* Available upon request

- Proposes online estimators with super-optimal MSE compared with non-recursive benchmarks
- Derives the first sufficient condition for  $O(1)$ -time or space update, and the first mini-batch estimator
- Discusses applications in Markov chain Monte Carlo and stochastic gradient descent

### A Remark About a Learning Risk Lower Bound

Mar – Oct 2020

*Collaborated with Yiqi LIN and Nicolas WICKER*

*Submitted*

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

## PRESENTATION

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**Diagnosing Learning Algorithms with Super-optimal Recursive Estimators** Dec 2020  
*ICSA 2020 Applied Statistics Symposium* Poster

## SOFTWARE

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**rlaser**: an R package for Recursive Long-run Variance Estimation Available upon request

## TEACHING EXPERIENCE

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### Department of Statistics, CUHK

Sep 2019 – Present

*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

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### Hong Kong Statistical Society

Jun 2020

*Statistical Project Competition for Secondary School Students*

*Adjudicator*

## WORK EXPERIENCE

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### **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

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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

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Lee Woo Sing College, Green Life Ambassador

Sep 2015 – Jul 2019

Hong Kong BioBlitz 2015, Social Media Administrator

Sep – Dec 2015

## TECHNICAL SKILLS

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### **Programming**

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

### **Publishing**

R Markdown, TeX/LaTeX, HTML 5

### **Tools**

MS Office, Eviews, Bloomberg Terminal, GIMP