Hoai Nam Nguyen

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Education

Rice University, Faculty of Engineering *Houston, TX, USA*
Ph.D in STATISTICS *2019 – 2023 (EXPECTED)*

- Research interests: Bioinformatics, Statistical Genetics.
- Relevant courses: Applied Stochastic Processes, Biostatistics, Probability in Bioinformatics and Genetics.

University of Cambridge, Judge Business School *Cambridge, UK*
MPhil in FINANCE (MERIT) *2015-2016*

- A highly competitive research master leading to PhD with an acceptance rate of 8%.
- Relevant courses: Corporate Finance, Continuous-time Finance, Econometrics, Asset Pricing.
- **GPA: 71%** (70% is required for continuation to PhD)

Imperial College London, Faculty of Natural Sciences *London, UK*
BS in MATHEMATICS (1st CLASS HONOUR) *2012–2015*

- Graduated in the top 10 of the BSc Mathematics cohort (approx. 300 students).
- Relevant courses: Statistical Pattern Recognition; Scientific Computation (in C++); Games, Risks and Decisions; Survival Models and Actuarial Applications, Stochastic Simulation, Applied Probability, Credit Scoring.
- **GPA: 86.1%** (70% is required for 1st Class)

Awards and Honors

VEF 2.0 Program recommended candidate (2018) – awarded to top Vietnamese students after two rounds of interview with leading Vietnamese and US professors. The VEF 2.0 Program is conducted by the Fellows and Scholars of the Vietnam Education Foundation (VEF) – an independent US Federal Government agency created by the US Congress.

IMA Prize (2015) – awarded by the UK Institute of Mathematics and its Applications to two Mathematics students at Imperial College London for outstanding academic performance.

CIFE Prize (2012) – top-performing A-level students in the UK.

NetCraft Prize (2012) – top 50 students in Computer Science nationally.

Gold Certificate in Senior Maths Challenge (2010 and 2011) – top prize in a national Mathematics competition.

Edexcel Prize in Chemistry (2011) – top 17 students in Chemistry nationally.

Work Experience

Rice University *Houston, TX, USA*
GRADUATE TEACHING ASSISTANT *AUG 2019 – PRESENT*

- STAT 413: Introduction to Statistical Machine Learning.
  Duties: Hold weekly recitations and office hours; Prepare homework solutions.

John von Neumann Institute, Vietnam National University *Ho Chi Minh City, Vietnam*
RESEARCH FELLOW AND TEACHING *AUG 2017 – APR 2019*

Project: *Modeling Yield Curves for the Hanoi Stock Exchange (HNX)*

- As part of a group led by Dr. Minh Man Ngo, my work mainly focused on the application of high-dimensional outlier detection methods (KNN, Local Outlier Factor, Influenced Outlierness and PCA) to a real data set from HNX with over 170,000 observations.

Teaching:

- TA: Probability and Statistics (Fall 2017, Fall 2018); Time Series (Spring 2018, Spring 2019)
- Instructor: Pre-master courses in Probability and Statistics; Short courses in Business Analytics.

VNG Corporation *Ho Chi Minh City, Vietnam*

DATA ANALYST *SEP 2017 – JAN 2018*

- Explored the techniques that marketers use to analyze transaction data in the game industry.
- Given a data set of more than 17 million transactions, performed customer segmentation based on metrics such as the Recency-Frequency score.
- Computed summary statistics to see variations across segments.
- Used multivariate regression to identify predictors for the life-cycle and the life-time value of a customer.
- Came up with personalized marketing strategies to lower costs and improve customer retention.

Projects

Asset Pricing Project *University of Cambridge*

Working under the supervision of DR. DAVID CHAMBERS

- Used Lagrange multiplier to optimize portfolios of contingent claims in a multi-state economy.
- Tested the CAPM and the FF3F model on 25 portfolios using one-pass OLS and two-pass GLS regressions.
- Evaluated the model fit using the Gibbons-Ross-Shanken F-test.
- Came up with recommendations to improve the model.

M3S7 Final Project *Imperial College London*

Working under the supervision of DR. ED COHEN

- Performed dimension reduction (originally 28 dimensions) and dealt with missing values by imputation.
- Built and tuned (by cross-validation) 5 classification models: QDA, CART, Logistic, KNN and Neural Network.
- Performed the McNemar test to statistically compare the KNN and the Random Forest models.
- Evaluated the models based on computational time, predictive accuracy and interpretability.

M2R Group Project *Imperial College London*

Working under the supervision of PROF. EMMA MCCOY

- Conducted research on the theory of SVM for linear and non-linear classification and regression.
- Applied SVM to a real data set. Tuned the parameters, including the choice of kernel function, by cross-validation.
- Compared Kernel Smoothing and SVM on the basis of Root Mean Square Error.
- Presented the findings to faculty members.

M1R Poster Project *Imperial College London*

Working under the supervision of DR. CHRISTOFOROS

- Conducted research on the theory of classification algorithms.
- Using MATLAB, built a classifier and executed it on Kaggle to get the out-of-sample error rate.
- Refined the model. The best model was implemented using ensemble learning.
- Prepared a poster in LaTeX and presented my work to faculty members.

Publications

- Bui Quang, P.; Klein, T.; Nguyen, N.H.; Walther, T. **Value-at-Risk for South-East Asian Stock Markets: Stochastic Volatility vs. GARCH**. J. Risk Financial Manag. 2018, 11, 18. Link.

Computing Skills

- **Programming**: R, MATLAB, Python
- **Data Mining***:* ggplot2, Numpy, Matplotlib, Pandas, SQL
- **Presentation***:* LaTeX, R Markdown, knitr