



Zachary Jones

Working as a research scientist on high level machine learning algorithms at the intersection of probability and applications has been a passion of mine and I enjoy the combination of rigorous problem solving and creative intuition that both play a part in drawing insights from data.

Chronology

Univ. Of Hamburg, Hamburg, Germany — *Research Assistant*

January 2022 - Present

Working as a full time Research Assistant at the University of Hamburg with a focus on applications of Graphical Neural Networks to marketing.

KU Leuven, Leuven, Belgium — *MSc Statistics and Data Science*

2019 - 2021

Magna cum Laude. I have been able to return to school from my time as a teacher and embrace both classical statistics and modern data science.

ITS Education, Asia, Hong Kong — *Physics Tutor*

September 2016 - August 2019

Haida International, Hangzhou, China — *English Teacher*

September 2015 - July 2016

Queen Mary, Univ. of London, London, England — *MSci Physics*

2012 - 2015

First class Honors degree with a focus on thermodynamics of N-Dimensional Black holes and materials for the use in fusion reactors.

Community College of San Francisco, San Francisco, Ca. —

2009 - 2012

Studying both Chinese and Physics to the associates level while working part time in physics laboratory.

Community College of San Francisco, San Francisco, Ca. — Physics lab aide

2010 - 2012

While studying, assisting in the design and construction of teaching aids for university level experimental physics courses.

Aramark Industries, Boise, Idaho — Line Cook

August 2008 - December 2008

Chillangos Taqueria, Boise, Idaho — Advertising

July 2008 - August 2008

Grassroots Campaigns, Inc., Santa Cruz, Ca — Canvassing

June 2008 - July 2008

Collecting political donations for Pres. Obama's initial campaign.

University of Santa Cruz, Santa Cruz, Ca — Undeclared

2007 - July 2008

Drew College Preperatory, San Francisco, Ca — Secondary School

2003 - 2007

Secondary school diploma

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[Github](#)

SKILLS

Programming: Python, C++, R, SAS, Matlab/Octave.

Environments:

Linux(Ubuntu/Arch), Git/Github

Statistics and Probability

AWARDS AND SCHOLARSHIPS

KU Leuven Datathon -

Best Pitch: My team and I cleaned and integrated crowdsourced geolocational data with news stories in order to detect anomalies in foot traffic.

Queen Mary's

International Science and Engineering Excellence

Award: Scholarship for Study in the UK awarded for academic achievement.

LANGUAGES

English: Mother Tongue

Chinese: B1

French: B1

Online Coursework

Coursera: Stochastic

Processes, Statistical

Mechanics: Algorithms and

Computations, Probabilistic

Graphical Models

PROJECTS

Random Fourier Features in Hyper-RKHS — Kernel Approximations

One can learn a kernel function from data using the mathematical structure of hyper reproducing kernel Hilbert space (hyper-RKHS), the aim of this project has been to project the high dimensional structure in hyper-RKHS onto a dense lower dimensional Fourier basis in order to improve performance. Tested on UCI benchmark datasets. Available [here](#).

Uncertainty Calibration in Federated Bayesian Learning — MALA algorithm for Bayesian Learning

In machine learning, especially in the case of multi-modal decision making, it can be critical to assess the confidence of the predictions generated by a neural network. The aim of this project was to illustrate how preconditioning stochastic langevin dynamics and approximating the MH accept-reject step can improve out of sample calibration in both the centralized federated case and a decentralized case. Publicly visible [here](#) and [here](#).

Option Pricing in Python — Advanced Modeling and Simulation

Calibrating both Heston and Bates stochastic volatility models using particle swarm optimization on option price data pulled from yahoo finance using the yahoo_fin API, then pricing and hedging exotic options using Monte Carlo simulations. Available [here](#).