Ph.D.

Muhammad H. Khan

Curriculum Vitae

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Education

2016–present **Yale University**, *Ph. D.*, Biomedical Engineering, New Haven, CT.

2015–2016 **Cornell University**, *M. Eng.*, Biomedical Engineering, Ithaca, NY.

2011–2015 **Cornell University**, *B. Sc.*, Chemical Engineering and Computer Science (double), Ithaca, NY.
Minors: Biomedical Engineering, Business

Skills

Languages Java, C, C++, Python, OCaml, UNIX Shell, PHP, VBA, SQL, LaTeX

Web HTML, CSS, JavaScript, Django

Applications MATLAB, Eclipse, Visual Studio, Emacs, Mathematica, MS Office, SigmaPlot, LabView, ImageJ

OS Windows, Linux, UNIX, OS X/macOS, iOS

Laboratory UV-Visible Spectroscopy, (FT)IR Spectroscopy, SEC-MALLS, PCR/qPCR/RT-PCR, Dry Etching, Microfluidic Device Patterning, HPLC

Research Experience

2016–present **Graduate Research Assistant**, *Hyder Lab*, Yale University, New Haven, CT.
Do work primarily in algorithmic analysis in experimental radiology and MRI. Performed Lorentzian lineshape analysis on tumor BIRDS images. Presently establishing the utility of Na-based BIRDS imaging *in vitro* for further work in mapping Na-centric tumor physiology.

2015–2016 **Graduate Research Assistant**, *Adie Lab*, Cornell University, Ithaca, NY.
Developed framework for dynamic real-time GPU-accelerated optical coherence elastography (OCE), with work primarily done using Microsoft Visual Studio and the nVIDA CUDA language.

2015 **Summer Research Assistant**, *Hasan Lab*, Princeton University, Princeton, NJ.
Performed computational *ab initio* calculations of electronic structures for different materials, in particular topological insulators, and subsequent quantum analysis of the discrete superconductive surface states

2013 **Undergraduate Research Assistant**, *Hernandez Lab*, Cornell University, Ithaca, NY.
Wrote image analysis software to determine probability of fracture high-resolution input bone image. Used MATLAB extensively to generate image array and calculate maximal principal strain values at possible fracture sites

2012 **Undergraduate Research Assistant**, *Kelley Lab*, Cornell University, Ithaca, NY & Jicamarca, Peru.
Studied effects of the fair-weather electric field to observe charge effects due to solar winds on the atmosphere. Used MATLAB/NIDAQ interfacing for data input and analysis

Work Experience

2016–present **Co-Head of Quantitative Trading and Research**, *Armitage Capital*, New Haven, CT.
Development of self-learning regression model to determine optimal buy and sell points for stock market. Current phase: static and dynamic testing in a makeshift stock market simulation environment.

2013, 2014 **Technology Summer Analyst**, *Goldman Sachs & Co.*, Jersey City, NJ.
Redesigned regression testing framework to reduce end-of-day test times 100-fold. Also wrote JSP web applications to facilitate trade reporting to FINRA.

2012–2014 **Ground Segment Subteam Member**, *Cornell University Satellite Team (CUSAT)*, Ithaca, NY.
Design of JSatTrak software in Java for the CUSAT and Violet teams to communicate with passing satellites overhead both local and remote ground stations.

Project Experience

Jan 2017 **Biomimetic Approach to Computer-Aided Diagnosis of Lung Cancer**, Yale HackHealth 2017, New Haven, CT.
Development of a deep learning-based eye-tracking algorithm to improve accuracy of classification in lung cancer imaging and radiology. Eye-tracking enhancements able to improve accuracy of classification by 3-5%.