Emmanuel Ekwedike

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EDUCATION

2015 – 2020	PRINCETON UNIVERSITY, NEW JERSEY, USA. **Doctor of Philosophy** Operations Research and Financial Engineering Dissertation: Optimal Decision Making via Stochastic Modeling and Machine Learning
2015 – 2017	PRINCETON UNIVERSITY, NEW JERSEY, USA. **Masters of Art** Operations Research and Financial Engineering
2013 – 2015	CITY COLLEGE, NEW YORK, USA. **Masters of Science** Applied Mathematics
2009 – 2013	BROOKLYN COLLEGE, NEW YORK, USA. **Bachelor of Science** Mathematics

RESEARCH EXPERIENCE

2016 – 2020 Researcher	PRINCETON UNIVERSITY, NEW JERSEY, USA Developed an optimization framework for solving bikesharing inventory allocation problems. Experienced building data-driven solutions for real-world problems and interactive web applications that share these solutions with the general public. Taught computer programming in python, for three semesters, for the Monte Carlo simulation course.
Spring 2019 Data Science Fellow	INSIGHT DATA SCIENCE, NEW YORK, USA Built a recommendation engine that helps users discover new music they would enjoy. Implemented a content-based recommendation model using data from the Million Song Dataset (python). Developed the front-end in Flask and deployed the web-application on AWS.
2017 – 2018 Research Intern	TENCENT AMERICA LLC, SEATTLE, USA Created an artificial intelligent (AI) agent that can play a challenging video game. Developed a feedback-based tree search algorithm for training an AI agent to learn how to navigate the challenging game environment. Implemented a neural network version of the feedback-based tree search algorithm in python.
2013 – 2015 Research Asst.	CITY COLLEGE, NEW YORK, USA Conducted research on high resolution meteorological forecasts using artificial neural network. Estimated and identified the variables that are needed to improve downscaling of shortwave radiation.
Summer 2014 DHS Intern.	RUTGERS UNIVERSITY, NEW JERSEY, USA Conducted research on cryptography with special focus on cybersecurity. Added verification components to two searchable symmetric encryption algorithms used for cloud computing to allow a client to efficiently verify an outsourced computation.

Publications

Sept. 2018 Daniel Jiang, Emmanuel Ekwedike, Han Liu: *Feedback-Based Tree Search for Reinforcement Learning.* ICML 2018.

Sept. 2015 Whitney Drazen, Emmanuel Ekwedike, Rosario Gennaro: *Highly Scalable Verifiable Encrypted Search.* CNS 2015: 497-505.

Honors And Awards

Fellowship

2015 – 2016 Princeton Presidential Fellowship

2014 – 2015 Bridge To The Doctorate Fellowship

2014 – 2015 Noaa Crest Fellowship

Summer 2014 Dhs Team Research Fellowship

2013 – 2015 Adobe Graduate Gem Fellowship

Summer 2012 Institute for the Recruitment of Teachers

2011 – 2013 Mellon Mays Undergraduate Fellowship

2011 – 2013 Lsamp Undergraduate Fellowship

Scholarship

2013 – 2014 Albert Shanker Graduate Scholarship

2009 – 2013 Albert Shanker Undergraduate Scholarship

Spring 2013 BC Departmental Scholarship

2011 – 2013 One Hundred Black Men Undergraduate Scholarship

Summer 2011 Furman study abroad grant

Membershipship

2014 – 2015 CUNY SIAM Chapter

2013 – 2015 CCNY Graduate Math Club

2011 – 2013 Golden Keys International Honors Society

Certification

Spring 2020 SciPhD - Business of Science for Scientists

Conference And Presentation

June 2019 Conference for African American Research in Mathematical Science
Poster **Princeton University, New Jersey, USA**

Nov. 2018 INFORMS Annual Meeting
Presentation **Phoenix, Arizona, USA**

July 2018 International Conference of Machine Learning
Poster **Stockholm, Sweden**

Nov. 2014	Global CUNY conference
Poster	**City College, New York, USA**
June 2014	Conference for African American Research in Mathematical Science
Poster	**Princeton University, New Jersey, USA**
July 2013	Conference for African American Research in Mathematical Science
Poster	**University of California, San Diego, USA**
April 2013	8th Annual Undergraduate Conference in Mathematics
Presentation	**Manhattan College, New York, USA**
April 2013	Urban University Series Conference in Mathematics and Computer Science
Poster	**Baruch College, New York, USA**
August 2012	Mathematics of the Social and Behavioral Science
Workshop	**West Chester University, Pennsylvania, USA**
July 2012	Algebraic Topology: Applications and New Directions
Workshop	**Stanford Univeristy, California, USA**

Teaching Experience

Spring 2020	PRINCETON UNIVERSITY, NEW NEW JERSEY, USA
Teaching Asst.	ORF407 - Fundamentals of Queueing Theory
Fall 2019	PRINCETON UNIVERSITY, NEW NEW JERSEY, USA
Teaching Asst.	ORF409 - Introduction to Monte Carlo Simulation
Spring 2019	PRINCETON UNIVERSITY, NEW NEW JERSEY, USA
Teaching Asst.	ORF418 - Optimal Learning
Fall 2018	PRINCETON UNIVERSITY, NEW NEW JERSEY, USA
Teaching Asst.	ORF409 - Introduction to Monte Carlo Simulation
Spring 2017	PRINCETON UNIVERSITY, NEW NEW JERSEY, USA
Teaching Asst.	ORF418 - Optimal Learning
Spring 2017	PRINCETON UNIVERSITY, NEW NEW JERSEY, USA
Teaching Asst.	ORF407 - Fundamentals of Queueing Theory
Fall 2016	PRINCETON UNIVERSITY, NEW NEW JERSEY, USA
Teaching Asst.	ORF409 - Introduction to Monte Carlo Simulation
Spring 2015	CITY COLLEGE, NEW YORK, USA
Teaching Asst.	MATH 37700 - Applied Statistics and Probability
2010 – 2013	BROOKLYN COLLEGE, NEW YORK, USA

Tutor	Prepared undergraduate freshmen and sophomores for math exams. Activities include sections for recitation and peer tutoring.
Spring 2012	BROOKLYN COLLEGE, NEW YORK, USA
Teaching Asst.	MATH 4406 - Seminar in Problem Solving and Selected Topics.

PROGRAMMING SKILLS

Models	XGboost, Random Forest, Regression, Classification, Clustering, Neural Network.
Statisics	Resampling Methods, Hypothesis Testing, Statistical Inference.
Language	Python, R, SQL, HTML, JavaScrip, CSS, Octave.
Tools	Git, AWS, Scikit-learn, Seaborn, ggplot, Pandas, Flask, Omnigraffle.

LANGUAGE SKILLS

Fluent	English
Advance	Igbo
Intermediate	Spanish

STUDY ABROAD

Summer 2011	BC- CHINA PROGRAM
Student	Studied the East Asian business development and the development of the Silk Road. Visited historical places in China, made global connections and interacted with local Chinese people.

LEADERSHIP EXPERIENCE

2014 – 2015	CITY COLLEGE, NEW YORK, USA
Treasurer	**CUNY Chapter of SIAM**
	Kept and managed the organization's financial records.

2014 – 2015	CITY COLLEGE, NEW YORK, USA
Vice President	**CCNY Graduate Math Club**
	Organized symposiums and seminars for the graduate student math club.

2010 – 2012	BROOKLYN COLLEGE, NEW YORK, USA
Senator	**Student Government**
	Served in the Committee of Governmental Operations. Revised CLAS rules of Assembly and Election Act. Volunteered over 100 hours of academic service on campus. Volunteered 100 hours of community service outside of campus at Rockaway Senior Center.