

Jimmy Hyun Jin Kim

Present Address

416-1500 Chicago Avenue
Evanston, IL 60201

Permanent Address

706-35 Warrender Avenue
Toronto, ON M9B5Z5

Education

Center for the Physics of Biological Function, Princeton, NJ. 2017-present
Graduate Student Researcher.

Northwestern University, Evanston, IL. 2015-present
Ph.D. Candidate, Physics.
Graduate Certificate in Integrated Data Science
CGPA: 3.919

University of Toronto, Toronto, ON. 2011-2015
Honours B.Sc. with High Distinction, Mathematics and Physics Specialist.
Philosophy Minor.
CGPA: 3.97

Honors and Awards

The Hymie and Roslyn Mida Student Award in Theoretical Physics 2015
Trinity College Provost's Scholar 2015
NSERC Undergraduate Student Research Award 2013,2014
Dean's List Scholar 2012,2013,2014
The Coxeter Scholarship in Mathematics 2013
The William Ramsay Scholarship in Physics 2013
The Harry Boxen Memorial Scholarship in Physics 2013
Chancellor's Scholarship 2012,2013
Dr. John Knowles Colling Memorial Scholarship 2012
Summer Undergraduate Research Fellowship 2012
University of Toronto Scholar 2011
The Wasteney's Admission Scholarship 2011

Certificates

Neural Networks for Machine Learning by University of Toronto (Coursera) 2017
Computational Neuroscience by University of Washington (Coursera) 2017
An Introduction to Evidence-Based Undergraduate STEM Teaching with Distinction (CIRTL) 2016
Machine Learning by Stanford University (Coursera) 2016
Certificates in High Performance Computing, Scientific Computing (SciNet) 2015

Teaching Experience

Teaching Assistant Jan. 2018-present

- Assisted Dr. Arthur Schmidt at Northwestern University
- Course: PHYSICS 130-2 College Physics
- Algebra-based physics course covering electromagnetism
- Led discussion sessions, held office hours, and evaluated quizzes and tests.

Teaching Assistant Sep. 2016-June 2017

- Assisted Dr. Deborah Brown at Northwestern University
- Course: PHYSICS 135-1,2,3 General Physics
- Calculus-based physics courses covering mechanics, electromagnetism, and modern physics.
- Led discussion sessions, held office hours, and evaluated quizzes and tests.

Project Experience

Deep reinforcement learning for active learning in NLP Q1 2018-present

- Supervised by Dr. Douglas Downey at Northwestern University
- Implementing deep Q-network to facilitate active learning for language modelling

Research Experience	Visualizing neural decoding with head direction cells	September 5-15, 2017
	<ul style="list-style-type: none"> • Final project for IDEAS Focus Summer School - Visualization • Built an interactive visual demonstration of neural decoding process in head direction cells 	
	Soccer Success: ML for predicting the outcome of soccer matches	April-June 2017
	<ul style="list-style-type: none"> • Course project for EECS 349 Machine Learning at Northwestern University • Implemented a Python pipeline for predicting the outcome of soccer matches using expert handcrafted in-game stats from the FIFA video game franchise 	
	Superlinear precision and memory in simple population codes	Q4 2016-present
	<ul style="list-style-type: none"> • Supervised by Dr. David Schwab at Northwestern University • Analytically derived optimal scaling relations of sensory and memory networks; developed simulation programs to numerically confirm the theoretical results; publication in preparation 	
	Superconductivity and magnetism in quantum materials	Summer 2014
	<ul style="list-style-type: none"> • Supervised by Dr. Young-June Kim at University of Toronto • Supported by NSERC Undergraduate Student Research Award • Synthesized iridium-based single crystals and characterized them magnetically (SQUID) and structurally (4-circle diffraction/LAUE); participated in KFe₂As₂ high pressure X-ray diffraction experiment at Argonne 	
	Neuronal tracking and activity measurement in <i>C. elegans</i>	Fall 2013-Spring 2014
	<ul style="list-style-type: none"> • Supervised by Dr. William Ryu at University of Toronto • Continuation of the NSERC project in the preceding summer; made further improvements to the tracking process including implementation of a 3D gradient flow tracking algorithm 	
Publications	Biological Physics - Neuronal structural dynamics	Summer 2013
	<ul style="list-style-type: none"> • Supervised by Dr. William Ryu at University of Toronto • Supported by NSERC Undergraduate Student Research Award • Developed image processing software to track and quantify neural activity in <i>C. elegans</i> 	
	Optical Tweezers Experiment	Summer 2012
Talks	<ul style="list-style-type: none"> • Supervised by Dr. David Bailey at University of Toronto • Supported by Summer Undergraduate Research Fellowship • Calibrated and tested optical tweezers used for an advanced physics laboratory course 	
	Pan-neuronal screening in <i>Caenorhabditis elegans</i> reveals asymmetric dynamics of AWC neurons is critical for thermal avoidance behavior.	
	I. Kotera, N.A. Tran, D. Fu, J.H.J. Kim , J.B. Rodgers, and W.S. Ryu, eLife 5 , e19021 (2016)	
Other Activities	“Too much precision can be bad”, Seven Minutes of Science	
	December 6, 2017	
	Mentor for the Physics Mentorship Program at University of Toronto	2017-present
	IDEAS Traineeship at Northwestern University	2017-present
	RSG Research Communication Program at Northwestern University	Fall 2017
	Cargese Summer School on Theoretical Biophysics	June 26-July 7, 2017
	Ontario Summer School on High Performance Computing	July 13-17, 2015
	Volunteer for 100 in 1 Day	June 7, 2014
Languages	BIMR Summer School on Modern Methods of Crystal Growth	May 27-30 2014
	Volunteer for Science Rendezvous	May 12, 2012 and May 10, 2014
English and Korean		
Python, MATLAB, Mathematica, C++, HTML, CSS, JavaScript		