Onyekachi "Kachi" Odoemene

1 Bungtown Rd● Cold Spring Harbor, NY 11724 ● 347-4702533● kachi.odoemene@gmail.com ●
https://kachio.github.io/

Education

Ph.D. Systems Neuroscience (2017), **Cold Spring Harbor Laboratory Watson School of Biological Sciences,** Cold Spring Harbor NY

Thesis Advisor: Dr. Anne K. Churchland *Committee Chair:* Dr. Anthony M. Zador

M.S. Biomedical Engineering (2011), **Purdue University,** West Lafayette IN

B.S. Biomedical Engineering (2009), **The George Washington University**, Washington DC

Awards & Fellowships

NIH F31 Individual NRSA Predoctoral Fellowship (2014-2016)

Honorable Mention, NSF Graduate Research Fellowship (2010)

Gordon Research Conference (on Ion Channels) Carl Storm Travel Fellowship (2010)

George Gamow Undergraduate Research Fellowship (2006-2007)

HHMI-GWU Summer Research Scholar (2006)

Technical Skills

Neuroscience Psychophysics, Electrophysiology, Optical Brain Imaging, Neuroanatomy, Optogenetics, Chemogenetics, Small animal neurosurgery

Quantitative Modeling and analysis of psychophysical behavior, Neural Data Analysis, Computational Neuroscience, Machine Learning

Programming MATLAB, Python, C, and C++

Electrical Engineering & Embedded Systems Analog and Digital Circuit Design, Signal Processing, Image Processing, Microfabrication (MEMS), Arduino, Raspberry Pi

Research & Engineering Design Experience

PhD Candidate in Systems Neuroscience (2011-Present), **Cold Spring Harbor Laboratory**

- Designed and executed on research program to investigate the causal role of rodent visual brain areas to visual decision-making behavior
- Developed psychophysics paradigm for rodent visual decision-making behavior
- Developed imaging system, and new research program in the lab, for functional mapping of rodent visual brain areas
- Supervised research technicians and undergraduate summer students
- Won NIH NRSA (F31) Individual Predoctoral Fellowship (2014-2016)

Graduate Research Associate in Peripheral Neural Engineering (2011), **Purdue University**

- Developed experimental preparation and analytical method for estimating electrode-to-nerve fiber distances

Graduate Research Associate in Biosensor Microfabrication (2009-2010), **Purdue University**

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- Designed and developed prototype lab-on-chip platform for simultaneous intracellular electrophysiology recordings from multiple neurons
- Designed and characterized performance of microelectrodes for NASA nano-satellite compatible biosensor platform for assessing *Cyanobacteria* gravitational physiology
- Led zero gravity space flight team (NASA FAST) to test custom lab-on-chip sensor platform which measured gravity dependent calcium currents of plant spores (*Ceratopteris richardii)*
- Won Honorable Mention for NSF Graduate Research Fellowship (2010)

Engineering Design Capstone Student (2008-2009), **The George Washington University**

- Designed and developed a mechanical model of vocal cords
- Designed and wrote MATLAB-based diagnostic software for analyzing human vocalization

Research Associate in Biophysics (2006-2008), **The George Washington University**

- Developed gold nanoparticle wire biomechanical sensor platform
- Won George Gamow Undergraduate Research Fellow (2006-2007)
- Won HHMI Summer Research Scholarship (2006)

Publications

Odoemene O and Churchland AK (*in prep*). “Distinct roles of mouse secondary visual areas in perceptual decision-making behavior”

Odoemene O and Churchland AK (2014). “Listening for the right sounds “(Preview). Neuron

Qiao S, **Odoemene O**, and Yoshida K (2012). “Determination of electrode to nerve fiber distance and nerve conduction velocity through spectral analysis of extracellular action potentials recorded from earthworm giant fibers” *Medical and Biological Engineering and Computing* 50(8) 867-975.

Robertson KL, Soto CM, Archer MC, **Odoemene O**, Liu JL (2011). “Engineered T4 viral nanoparticles for cellular imaging and flow cytometry” *Bioconjugate Chemistry* 22 (4) 595-604

Conference Abstracts & Presentations

Odoemene O and Churchland AK (2016, talk). “Causal role of mouse visual area AM in visual evidence accumulation”. *HHMI Janelia Farm Junior Scientist Workshop on Neural Circuits of Behavior*. Ashburn VA.

Odoemene O, Brown AM, Kaufman MT, Churchland AK (2014, poster). Disrupting inhibition in posterior parietal cortex reduces decision accuracy. *Society for Neuroscience Meeting*. Washington, DC.

Odoemene O, Brown A, Churchland AK (2013, invited poster). Mice: a platform for studying sensory decision-making. *Society for Neuroscience* (Diversity Fellows Poster Session), San Diego CA

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Odoemene O, Ul Haque A, Porterfield DM (2010, poster). "Design and Fabrication of a Multi-Patch Recording Unit for Electrophysiological Studies on Neural Networks. *Gordon Research Conference on Ion Channels* Tilton NH

*Ul Haque A, ***Odoemene O**, Porterfield DM (2010, poster). The CHO biochip: A novel nano-satellite compatible lab-on-a-chip for studying Cyanobacteria gravitational physiology. *Institute of Biological Engineering Annual Meeting* Cambridge, MA

Robertson KL, Archer M, Soto CM, **Odoemene O,** Liu JL (2009, poster). "Mutant T4 bacteriophage nanoparticles for Imaging and Detection Applications." 238th *American Chemical Society Meeting*, Washington, DC.

Teaching & Mentoring Experience

Mentor, CSHL Undergraduate Research Program (2015)

Math & Science Tutor, Middle & High school students in the Long Island area (2011-2013)

Course Instructor, CSHL DNA Learning Center (2012)

Course Instructor, Purdue University Gifted Education Resource Institute (2011)

Graduate Mentor & Tutor, Purdue University (2009-2010)

Tutor & Peer Mentor, The George Washington University (2006-2008)

GED Math Instructor, DC Catholic Charities (2006-2008)

Professional Membership, Service & Outreach

Member, Society for Neuroscience (2011-Present)

Science Judge, Long Island Science Fair (2015)

Science Judge, Syosset High School Research Fair (May 2014)

Mentor/Coach, LI-ACTSO Science Competition (2013, 2014)

Tour Guide, CSHL (2011-2013)

Judge, LI-ACTSO Science Competition (2013)

Ambassador, Purdue University Birck Nanotechnology Center (2010)

Chapter President, National Society of Black Engineers, The George Washington University (2008)