

Jordan Matelsky
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Johns Hopkins University

Neuroscience (BS) 2016

Experience

- 2016
Johns Hopkins University Applied Physics Laboratory
Computational Neuroscientist. Projects include BRAIN Initiative brain-mapping efforts such as IARPA MICrONS; NIH-funded work on BossDB – a spatial database – and cloud-native big-data biological analyses; as well as internal machine-learning, connectome analysis, and general data-science and machine-learning work.
- 2013–2016
Medella Medical LLC
Co-Founder & Principal. In a team of four, embarked on a mission to bring meaningful, beautiful design to the world of healthcare. Pursued HIPAA-compliant digital-health projects and applications at the Johns Hopkins Medical Institute and New York Presbyterian Hospital.
- 2014
FitMango
Chief Technological Officer. We founded FitMango to make personal health and fitness training affordable and meaningful to the general public. FitMango pairs users with personal trainers who can help them reach their fitness goals, and tracks health data to improve workout and diet regimens. FitMango is venture-backed, and currently in use at personal-training centers on the east coast of the United States.
- 2015–2016
mHealth CBID
Primary Healthcare Delivery Software Developer. Model for Underserved Populations in Rural India. Developed and deployed software to connect physicians in urban centers of India to patients in rural areas in order to facilitate diagnosis and treatment in regions where healthcare was otherwise unavailable.
- 2013
InstaEDU INC
Software Intern. Designed software on the InstaEDU platform, a web-app to connect students with appropriate tutors. Developed both front- and back-end software on the Django framework.
- 2013
Activu Corporation
Intern. Personal assignments included designing secure extensions for Microsoft Office (C#), as well as a Virtual-Machine management platform (Python).

Research

- 2015 — 2016
NeuroData
Developed software infrastructure to aid in understanding the complex connectivity of the brain. My proudest contribution to the world of open-data neuroscience has been **ndio**, a comprehensive Python library that manipulates, stores, and interacts with large-scale neurodata. The ndio codebase spans thousands of lines of tested, cross-platform code, currently in active use by neuroscientists both inside and outside of the Johns Hopkins NeuroData community.
- 2014
Dr. Joel Bader
Code contributor on the Synthetic Yeast (Sc2.0) project. Primary projects included developing secure lab-bench digital notebooks for designing and implementing involved synthetic-biology protocols.
- 2013
Dr. Gislin Dagnelie
Architected digital-diagnostics system to collect patient- and hardware-data after implantation with a retinal prosthesis.
- 2011
Dr. Minjoon Kouh
Assisted in the development of a protocol to track and predict neurite growth of in-vitro simulated-Alzheimer's neurons.

Publications & Presentations

Nov 2017

"A substrate for modular, extensible data science."

Jordan K Matelsky, Joseph Downs, Brock Wester, William Gray Roncal
bioRxiv 217349; doi: <https://doi.org/10.1101/217349>. November 2017.

Nov 2017

"The Block Object Storage Service (bossDB): A Cloud-Native Approach for Petascale Neuroscience Discovery."

Dean Kleissas, Robert Hider Jr., Derek Pryor, Timothy Gion, Priya Manavalan, **Jordan Matelsky**, Alex Baden, Kunal Lillaney, Randal Burns, Denise D'Angelo, William Gray Roncal, Brock Wester
bioRxiv 217745; doi: <https://doi.org/10.1101/217745>. November 2017.

Nov 2017

"Cloud-Native Infrastructure and Accessible Interfaces to Enable Peta-Scale Neuroscience."

Examples and technical review of neuroscience research and infrastructure technologies developed at the Applied Physics Laboratory.

Poster Presentation. Society for Neuroscience 2017, Washington DC.

April 4 2017

"Scalable Big Data Infrastructure to Enable Peta-Scale Neuroscience."

A high-level overview of peta-scale neuroscience technologies, including bossDB, intern, and substrate.
Poster Presentation. Max Planck / Howard Hughes Connectomics Meeting 2017, Berlin.

Nov 13 2016

"ndio: Scalable Neuroscience Data IO."

A summary of ndio, a Python framework developed to enable easy and accessible manipulation of big-data neuroscience to the research community.

Society for Neuroscience, November 2016.

Nov 11 2015

"Python in Big-Data Neuroscience."

A summary of work in bringing parallelizable, intuitive, open-source software to the world of data-driven petascale neuroscience.
Johns Hopkins University, November 2015.

Nov 10 2015

"Prelude to Piano Concerto: Entrepreneurship on Campus."

I had the tremendous honor of being invited to give a **TEDx** talk on the state of entrepreneurship at universities. An online recording will be available in the near future.

2015

Editor: *The Blender 3D Cookbook* — Enrico Valenza

Editor. This book covers the basics of 3D character modelling in the open-source *Blender 3D* software suite.

Mar 27 2015

"Low-Cost Tocodynamometry and Fetal Heart-Rate Monitor"

An overview of a low-cost, smartphone-based tocodynamometer-toco-transducer and fetal heart-rate monitor for use in regions of low healthcare accessibility.

The Biomedical Engineering Society Undergraduate Research Conference, Johns Hopkins University, March 2015.

Dec 23 2014

"What is a Neuroscientist?"

Interactive demonstration and presentation of neuroscience technology and common cognitive tests to excite middle-school students about neurological and psychological sciences.

Mount Olive Middle School, Mount Olive, NJ December 2014.

Nov 20 2014

"How to Be a College Superstar."

Presented at round-table discussion discussing the state of innovation and entrepreneurship on college campuses. Sponsored by AKΨ, Career Center, Biomedical Engineering, and Computer Science departments.

Johns Hopkins University, November 2014.

April 15 2014

"Data-validation improvements in retinal prosthesis testing."

Multimedia Presentation. Presented at the Undergraduate Research Symposium.

Johns Hopkins University, April 2014.

May 29 2014

"A Quantitative Data Visualization Technique for Expressing Biomedical Data."

Poster Presentation. Presented at the Psychiatry and Behavioral Sciences Research Potpourri.

Johns Hopkins Medical Institute, Psychiatry & Behavioral Sciences Department

Further Publications & Authorship

Nov 2017

"CONFIRMS: Creating Optimized Networks for Informing Reconstruction Metrics and Science."

Gray Roncal et al. Poster Presentation. Society for Neuroscience 2017, Washington DC.

Nov 2017

"*RETINA: Realtime evaluation tools for integrated neuroscience analysis.*"
Bishop et al. Poster Presentation. Society for Neuroscience 2017, Washington DC.

Activities & Memberships

2014
Society for Neuroscience (SfN)

2015 – '16
The American Institute of Chemical Engineers (AIChE)

2014 – '16
NPΨ: The Johns Hopkins University Neuroscience Honors Society
Acted as chair for a volunteer community outreach program that brought neuroscience education in an entertaining, enriching format to children in Baltimore City.

2013 – '16
HopHacks
Organizer. Produced bi-annual, three-day hackathon events for students at Johns Hopkins University as well as the surrounding areas.

2013 – '16
Engineering World Health
Executive. Handled all grants and funding proposals for several teams of undergraduate engineers. Spearheaded the design of a low-cost tocodynamometer to improve childbirth in developing countries. Recipient of the 2014 Johns Hopkins University Student Initiatives Fund.

2012 – '16
Neuroscience Journalism Club
President. Led undergraduate meetings tailored to discuss recent, notable discoveries in the neuroscience world. Assisted in general understanding of complex biomedical language.

2013 – '14
Sustainable Hopkins Infrastructure Program (SHIP)
Researched and pitched large-scale projects to university administration in order to improve environmental-friendliness and spread green-awareness on campus.

2012 – '14
Student Admissions Advisory Board
Member of a select, student-run team to supply a student perspective in the Johns Hopkins University Admissions Office.

2009 – '12
Roxbury Technology Association
Co-Founder. Designed and taught curricula in a variety of technological subjects, including FIRST Robotics, computer programming, 3D design, and more. Oversaw a team of student teachers.
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