

William A Liberti III

CONTACT INFORMATION	738 Cragmont Ave Berkeley, CA 94708	617-529-0762 wliberti@berkeley.edu
RESEARCH INTERESTS	Systems Neuroscience, Neuroethology, Brain Machine Interfaces, Reinforcement Learning, Tool development, Motor Sequencing & Learning, Neuroprosthetics, Electrophysiology, Neuropotonics.	
EDUCATION	Boston University Graduate Medical School , Boston, MA Ph.D., Neuroscience, <i>July 2017</i> <ul style="list-style-type: none">• Advisor: Timothy Gardner, Ph.D Boston University , Boston, MA B.S., Biochemistry & Molecular Biology <i>With Distinction</i> , May 2012	
RESEARCH EXPERIENCE	Postdoctoral Fellow October 2017 to Present Carmena Lab, U.C. Berkeley Department of Electrical Engineering & Computer Science <i>Research Summary:</i> Large-scale, multi-site, multi-electrode recordings and multi-photon calcium imaging recordings in awake behaving rodents studying the neural circuits of neuroprosthetic skill learning. Graduate Research Assistant May 2013 to July 2017 Graduate Program in Neuroscience, <i>Neuropotonics Graduate Fellow</i> <i>Research Summary:</i> Designed and implemented of tools for Electrophysiology and Calcium imaging in awake behaving Zebra Finches to study motor learning and the stability of motor sequencing. The key finding was that the flexible participation of excitatory projection neurons (stabilized by mesoscopic-level inhibition), forms the mechanistic basis of memory maintenance and and motor stability in the songbird.	
REFEREED JOURNAL PUBLICATIONS	<ol style="list-style-type: none">1. Liberti WA, Shen J, Perkins LN, Gardner TJ “Context dependent variability of HVC projection neurons.” <i>In Preparation</i>2. Cohen Y, Shen J, Semu D, Leman DP, Liberti WA, Perkins LN, Gardner TJ “Canary premotor region HVC encodes behavioral sequences with history dependence.” <i>In Preparation</i>3. Liberti WA, Gong XL, Rosebery TR, Carmena JM, “Local network coordination supports neuroprosthetic control.” <i>IEEE Transactions on Neural Systems and Rehabilitation Engineering</i> (2019)4. Liberti WA, Perkins LN, Leman DP, Gardner TJ “An open source, wireless capable miniature microscope system” <i>Journal of Neural Engineering</i> 14.4 (2017): 045001.5. Liberti WA*, Markowitz JE*, Perkins LN, Leman DP, Liberti DC, Guitchounts G, Velho T, Lois C, Kotton DN, Gardner TJ “Unstable neurons underlie a stable learned behavior” <i>Nature Neuroscience</i> 19.12 (2016): 1665-1671.6. Markowitz JE*, Liberti, WA*, Guitchounts G, Velho T, Lois C, Gardner, TJ “Mesoscopic patterns of neural activity support songbird cortical sequences” <i>PLoS Biology</i>, 13.6 (2015): e1002158.7. Guitchounts G*, Markowitz JE*, Liberti WA*, Gardner TJ “A carbon-fiber electrode array for long-term neural recording.” <i>Journal of Neural Engineering</i>, 10, 046016 (2013).	
PREPRINTS	<ol style="list-style-type: none">8. Shen J*, Blute T*, Liberti WA*, Yen W, Liberti DC, Kotten DN, Cruz-Martin A, Gardner TJ “Songbird neural-organotypic culture as an in-vitro model for interrogating self-organizing sparse networks” <i>bioRxiv</i> 164228; doi: https://doi.org/10.1101/164228 <i>In Submission</i> <p>* indicates co-authorship</p>	
PATENTS	Minimally invasive splaying microfiber electrode array and methods of fabricating and implanting the same. U.S. Patent Application 14/902,734, 2014	

AWARDS	• PLoS Young Investigator Award	2018
	• GPN 1 st place poster prize	2016, 2017
	• Neurophotonics Graduate Fellowship	2016
	• BioWeek 1 st place poster prize	2015
	• B.U. Computational Neuroscience Fellowship	2013
	• Department of Biology Teaching Fellowship	2012–2015
	• Department of Chemistry Teaching Fellowship	2011–2012
PRESENTATIONS	First Author Conference Abstracts	
	• “Local network coordination supports neuroprosthetic control”	<i>San Francisco, 2019</i>
	• “Local network coordination supports neuroprosthetic control”	<i>San Diego, 2018</i>
	• “Spatiotemporal credit assignment in neuroprosthetic control”	<i>Janelia, 2018</i>
	• “Premotor network exploration during practice”	<i>COSYNE, Denver CO, 2018</i>
	• “Social context mediated pre-motor encoding”	<i>Washington DC, 2017</i>
	• “Structured illumination ready Miniscopes” (Second co-author)	Janelia, 2017
	• “Rules for motor planning and order in the songbird HVC ”	San Diego, 2017
	• “Sleep promote maintenance of stable motor performance in songbirds”	San Diego, 2016
	• “Unstable neurons underlie a stable learned behavior”	Salt Lake City, 2016
	• “Stability and drift in songbird cortical sequencing”	Chicago, 2015
	• “Mesoscopic patterns of neural activity support songbird cortical sequences”	Washington DC, 2014
	• “A carbon-fiber electrode array for long-term neural recording.”	New Orleans, 2012
	Invited Talks	
	• Faculty Debate Moderator, Helen Wills Neuroscience Retreat	<i>October 2018</i>
	• 6th European Birdsong Meeting, (Odense, Denmark), Keynote	<i>April 2018</i>
	• Georgia Tech (Neuroscience), Invited talk	<i>April 2018</i>
	• Santa Clara U. (Bioengineering), Invited talk	<i>February 2018</i>
	• Tufts (Neuroscience), Invited talk	<i>July 2017</i>
	• Duke (Neuroscience), Invited talk	April 2017
	• UC Berkeley (Neuroscience), Invited talk	March 2017
	• UC Berkeley (EE& CS), Invited talk	February 2017
	• NSF-NRT Neurophotonics Spotlight	September 2016
	• Computational and Systems Neuroscience (COSYNE)	February 2016
	• Boston College Neuroscience Seminar Guest Speaker	January 2016
	• Boston U. Neuroscience Seminar Series	May 2015, Sept 2016, April 2017
	• Boston U. Biology Seminar Series	March 2015
	• Boston U. Graduate Program in Neuroscience Retreat	June 2015
TEACHING EXPERIENCE	CHEMISTRY Boston University	
	CH203 - Organic Chemistry	2011–2012
	CH131- Inorganic Chemistry for Engineers	2011–2012
	NEUROSCIENCE/BIOLOGY Boston University	
	BI315 - Systems Physiology	2012–2013
MENTORSHIP	BI644/NE644 - Neuroscience Design Lab	2013–2016
	Daniel Leman	2014–2017
	Undergraduate Researcher; <i>Developed surgical/optical methods to longitudinally record cells in HVC. Received UROP award every semester from 2015-2017. Authorship on two published works: [4 & 5]</i>	
	Michelle Crough	2015–2017
	Undergraduate Researcher; <i>Pioneered cell-type specific imaging in the songbird HVC</i>	
	Miko Dimov	2015–2016
	Undergraduate Researcher; <i>Adapted optical recording rigs to study motor systems in canaries</i>	
	Carlos Gomez	2015–2016
	Biomedical Engineering Senior design project; <i>Designed proof-of-concept wireless miniature microscopes. Contributed to publication [4],</i>	
	Ale Eguren	2015–2016
	Biomedical Engineering Senior design project; <i>Designed proof-of-concept multi-wavelength capable miniature microscopes. Contributed to publication [4]</i>	
	Christe Ye	2016–2017
	Research for credit; <i>Explored the effects of sleep on the stability of vocal motor production</i>	

SERVICE	CELEST Electronics & Experimental Design Course	2013–2015
	<i>Course Overview:</i> Through NSF initiative CELEST: (Center of Excellence for Learning in Education, Science and Technology). Taught students from traditionally underrepresented backgrounds in science to program in C, and design simple circuits.	
	Graduate Resident Assistant	2011–2017
	<i>Overview:</i> Support diverse student populations in living/learning communities on Boston University's campus.	
	Ad Hoc Referee: <i>PLoS ONE</i>	2016–present
PUBLIC	<ul style="list-style-type: none"> • www.github.com/WALIII • waliii.github.io 	