Timothy W. Dunn

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Current Appointment	**Duke University**. Assistant Professor of Neurosurgery.	Aug 1 2020 –

Education	**Ph.D.** in Neurobiology, **Harvard University** *Brain-wide neural dynamics underlying looming-evoked escapes and spontaneous exploration* with Florian Engert	2015
	B.A. in Molecular and Cell Biology, **University of California at Berkeley** *With Highest Honors*	2008

Other Training	AI Health Postdoctoral Fellow, **Duke University**	2017 – 2020
	College Fellow of MCB, **Harvard University** *with Sean Eddy*	2016 – 2017
	Postdoctoral Fellow, **Harvard University** *with Florian Engert*	2015 – 2016
	Visiting Scientist, **HHMI Janelia Research Campus** *with Misha Ahrens*	2013 – 2016

Honors and Awards	Duke Institute for Health Innovation Pilot Grant	2020
	Pratt School of Engineering Peer Recognition	2020
	Duke Global Health Institute Pilot Research Grant	2020
	NVIDIA GPU Grant	2017
	IBM Watson AI XPRIZE Finalist (with Team DataKind)	2017
	Harvard University Certificate of Excellence in Teaching	2017
	A2 Fellowship (international collaboration). Japan National Institute of Genetics.	2015
	National Science Foundation (NSF) Graduate Opportunities Worldwide Fellowship	2013
	Harvard University Certificate of Distinction in Teaching	
	National Science Foundation (NSF) Graduate Research Fellowship	2011
	Molecular and Cell Biology Department Citation (Best in Class). UC Berkeley.	2008
	I.L. Chaikoff Award for Excellence in Undergraduate Research. UC Berkeley.	2007
	Regents and Chancellor's Scholarship (full undergraduate funding). UC Berkeley.	2004

Publications

Koltai DC, **Dunn TW**, Smith P, Sinha DD, Bobholz S, Kaddumukasa MN, Teuwen DE, Nakasujja Noeline, Chrakraborty P, Kolls BJ, Nakku J, Haglund MM, Fuller A (**2020**). "Sociocultural Determinants and Patterns of Healthcare Utilization for Epilepsy Care in Uganda." *Epilepsy and Behavior. In Press.*

Elahi C, Spears CA, Williams S, **Dunn TW**, Najjuma JN, Staton CA, Vissoci JR, Fuller A, Kitya D, Haglund MM (**2020**). An Attitude Survey and Assessment of the Feasibility, Acceptability, and Usability of a Traumatic Brain Injury Decision Support Tool in Uganda. *World Neurosurgery.*

Dunn TW and Fitzgerald J (**2020**). "Correcting for physical distortions in visual stimuli improves reproducibility in zebrafish neuroscience." *eLife*

Carin L, Carlson D, **Dunn TW**. Introduction to Machine Learning, Duke University Coursera Course (released 2018). Accessed from https://www.coursera.org/learn/machine-learning-duke.

Dunn TW and Koo PK (**2017**). "Inferring Functional Neural Connectivity With Deep Residual Convolutional Networks." *bioRxiv*

Naumann EA, Fitzgerald JE, **Dunn TW**, Rihel J, Sompolinsky H, Engert F (**2016**). "From whole-brain data to functional circuit models: the zebrafish optomotor response." *Cell*

Publications Cont.

Dunn TW*, Mu Y*, Narayan S, Randlett O, Naumann EA, Yang C-T, Schier AF, Freeman J, Engert F, Ahrens MA (**2016**). "Brain-wide mapping of neural activity controlling zebrafish exploratory locomotion." *eLife*

Dunn TW, Gebhardt C, Naumann EA, Riegler C, Ahrens MB, Engert F, Del Bene F (**2016**). "Neural circuits underlying visually evoked escapes in larval zebrafish." *Neuron*

Huang KH, Ahrens MB, **Dunn TW**, Engert F (**2013**). "Spinal projection neurons control turning behaviors in zebrafish." *Current Biology*

Kokel D, **Dunn TW**, Ahrens MB, Alshut R, Cheung CY, Saint-Amant L, Bruni G, Mateus R, van Ham TJ, Shiraki T, Fukada Y, Kojima D, Yeh JR, Mikut R, von Lintig J, Engert F, Peterson RT (**2013**). "Identification of nonvisual photomotor response cells in the vertebrate hindbrain." *Journal of Neuroscience*

Fortin DL, **Dunn TW**, Fedorchak A, Allen D, Montpetit R, Banghart MR, Trauner D, Adelman JP, Kramer RH (**2011**). "Optogenetic photochemical control of designer K+ channels in mammalian neurons." *Journal of Neurophysiology*

Fortin DL, **Dunn TW**, Kramer RH (**2011**). "Engineering light-regulated ion channels." *Cold Spring Harbor Protocols*

Fortin DL, Banghart MR, **Dunn TW**, Borges K, Wagenaar DA, Gaudry Q, Karakossian MH, Otis TS, Kristan WB, Trauner D and Kramer RH (**2008**). "Photochemical control of endogenous ion channels and cellular excitability." *Nature Methods*

Publications In Revision

Dunn TW*, Marshall J*, Severson S, Aldarondo D, Hildebrand D, Wang W, Carlson D, Freiwald W, Wang F, Olveczky O (**2020**). "Geometric deep learning enables 3D kinematic profiling across species and environments." *Nature Methods*

Adil SM, Elahi C, Gramer R, Spears CA, Fuller AT, Haglund MM, **Dunn TW** (**2020**). "Predicting the Impact of Neurosurgery on TBI Patients in the Low Resource Setting: A Machine Learning Approach in Uganda." *Journal of Neurotrauma*

Spears CA, Adil SM, Fuller A, Kolls BJ, Haglund MM, **Dunn TW** (**2020**). Surgical Intervention and Patient Factors Associated with Acute Outcomes in Patients with Traumatic Brain Injury at a Tertiary Care Hospital in Uganda. *Journal of Neurosurgery*

Marshall J, Aldarondo D, **Dunn TW**, Wang W, Berman G, Ölveczky B (**2020**). "Continuous long-term recordings of whole-body kinematics across the rodent behavioral repertoire." *Neuron*

Competitive Peer-reviewed Proceedings

Marshall J, Aldarondo D, Wang W, **Dunn TW**, Berman G, Ölveczky B (**2020**). "Probing the neural substrates of movement across the rodent behavioral repertoire." *Cosyne 2020*

Dunn TW*, Marshall J*, Wang W, Carlson D, Ölveczky B (**2019**). "Quantifying 3D body and limb kinematics as a prerequisite for understanding behavior." *LMRL Workshop, Neural Information Processing Systems 2019*

Dunn TW*, Mu Y*, et al. (**2015**). "Neural control of spontaneous behavior patterns in larval zebrafish." *Cosyne 2015* (Oral)

Recent Conference Presentations

Schroeder R, Neely B, **Dunn TW**, Frasure E, Huang E, Mathew J (**2019**). "Use of neural net modeling for drug diversion surveillance among anesthesiology providers. *American Society of Anesthesiologists*

Recent Talks

"New methods for tracking and parsing animal behavior." Computational and Theoretical Neuroscience Seminar, Duke University, 2018, Durham, NC

"Functional connectivity from calcium imaging data." Neurotuscany Circuits and Behavior Conference, 2017, Montecastelli Pisano, Italy

Teaching Experience

Duke University.

Lecturer. Duke Machine Learning Summer School, Winter School, Coursera 2018-2020

Harvard University.

Lecturer. MCB 111: Mathematics in Biology 2017

Guest Lecturer. NEURO 109A: Precision Neuroscience 2017

Lecturer. MCB 112: Biological Data Analysis 2016

Guest Lecturer. OEB 105: Neurobiology of Motor Control 2015

Co-Director. Imaging and Behavioral Analysis Workshop 2013