David White

PhD Candidate

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Research Interests: Neuroscience. Systems modeling. 3D vision and perception. Receptive fields and filters. Image processing. Optimal Inference.

Education

08 2015 – present **PhD**, *University of Pennsylvania*, Pennsylvania, USA.
Neuroscience Graduate Group

06 2008 – 12 2013 **BAS**, *Brigham Young University*, Utah, USA.
Majors in neuroscience and biophysics, Minor in chemistry

Research Experience

10.2017–present **PhD Candidate, RA, System Administrator**, *Johannes Burge*, University of Pennsylvania.
Psychophysics and Modelling 3D vision perception

01.2017–10.2017 **PhD Student, RA**, *Johannes Burge*, University of Pennsylvania.
Psychophysics and Modelling 3D vision perception

09.2016–12.2016 **PhD Student, RA**, *Alan Stocker*, Univeristy of Pennsylvania.
Modelling bounded rationality and efficiency in human inference.

05.2016–09.2016 **PhD Student, RA**, *Danielle Basset*, Univeristy of Pennsylvania.
Analysing the affect of brain network modularity on optimal energy requirements in neural systems.

01.2016 – 12.2015 **PhD Student, RA**, *Minghong Ma*, *Vijay Balsubramanian*, Univeristy of Pennsylvania.
Olfactory epithelium tissue recording by MEA and analysis.

10.2014 – 12.2015 **Tech Consultant**, *Scott Steffensen*, Brigham Young University.
Ex vivo measurement of peroxide formation by dopaminergic cells in the VTA by methamphetamine exposure and induced currents.

07.2012 – 09.2014 **Head RA**, *David Busath*, *Sterling Sudweeks*, Brigham Young University.
Measuring the effects of various drugs on gap-junction network currents by in vitro dual-whole-cell patch recording of cultured neuroblastoma cells

11.2012 – 09.2013 **RA**, *Scott Steffensen*, Brigham Young University.
Ex vivo analysis of cell-membrane and receptor modulation in the mesolimbic system of rodents by drug modulation and/or current induction using single-cell patching. Focus on GABAergic and dopaminergic cells.

10.2011 – 06.2012 **RA**, *David Busath*, *Scott Steffensen*, Brigham Young University.
High speed photometry of gap junction mediated wave activation in the ex-vivo perforant pathway of the hippocampus using calcium sensitive dyes.

09.2008 – 06.2009 **RA**, *Scott Steffensen*, Brigham Young University.
In Vivo FSCV of dopamine oxidation in rodent brains, analyzing the various effects of addictive drugs and similar agonists/antagonists in the mesolimbic system. Particular interest in alcohol and cocaine.

Teaching Experience

09.2018 **Instructor**, *mindCORE*, University of Pennsylvania.
Intro to Matlab

01.2018 – 05.2018 **Teaching Assistant**, University of Pennsylvania.
Intro to biological basis of behavior

Other

01.2018–present **Club founder and organizer**, *Comp. Neuro. Initiative*, University of Pennsylvania.
CNI+/- research club for graduates and postdocs

Additional Employment

09 2014 – 09 2015 **Quality Assurance Engineer**, *Content Watch Inc.*, Utah, USA.

07 2009 – 08 2011 **Religious volunteer**, *LDS church*, Samara, Russia.

Specific Skills

Human	Psychophysics
Modelling	Image processing, Bayesian stats, decision theory, dimensionality reduction
Coding Languages	Matlab/Octave. eLisp. Bash. Python. LAMP stack. Javascript. C. LaTeX. git.
Computing	Mechanical turk. Cluster computing. Server administration. Linux. emacs. vim.
In-Vivo Animal Experimentation	Mice and rats. Anesthesia. Dissection. Surgery.
Patch Clamping	Loose-cell. Whole-cell. Dual-patch. Voltage-clamp. Current-clamp. Ex-vivo. In-vitro. Multiclamp and Clampex. Pipette design. Brain slicing.
Cell Culturing	Maintenance. Plating. Cryogenics. Flow-cytometry.
Microscopy	Fluorescent. Infrared. Confocal. High-speed motion capture. Calcium sensitive dyes. DNA and peroxide assays. Brain staining. Tissue identification.
Spectroscopy	NMR. IR. Mass spectroscopy.
Imaging	MRI preprocessing, EEG use and analysis, EMG use and analysis.
Languages	English (native). Russian (fluent). Spanish (moderate). German (novice).
Other	Circuit design. Soldering.

Conference Presentations

David White, Johannes Burge. Human binocular disparity estimation with natural stereo-images. Vision Sciences Society (2018). 53.426.

SI Shin, JK Mabey, DN White, SS Sandoval, CA Nielson, ND Schilaty, DN Taylor, SN Sudweeks, JG Edwards, JM McIntosh, J Wu, SC Steffensen. Ethanol inhibits GABA neurons in the ventral tegmental area and dopamine release in the nucleus accumbens via presynaptic $\alpha 6$ nicotinic receptors on GABA terminals. Society for Neuroscience Abstracts (2013). 38 60.08.

JK Mabey, SI Shin, DN White, CA Nielson, ND Schilaty, R Ting-a-Kee, H Vargas-Perez, D Van der Kooy, SC Steffensen. Functional switch in $GABA_A$ receptors on VTA GABA neurons by chronic ethanol. Society for Neuroscience Abstracts (2013). 38 349.12.

JK Mabey, SI Shin, DN White, C Nielson, H Vargas-Perez, R Ting-A-Kee, A Bahi, D Van der Kooy, SC Steffensen. Ventral tegmental area GABAergic activity underlies opiate motivation. INS Snowbird Symposium (2012).

J Dallin, H Hansen, JD Wilcox, RS McClellan, S Shin, DN White, SC Steffensen. Connexin-36 KO Mice Have a Higher Threshold for Kindled Seziures; A Pilot Study. Brigham Young University Research Fair (2012).

Publications

SI Shin, JK Mabey, DN White, CA Nielson, ND Schilaty, R Ting-A-Kee, H Vargas-Perez, D van der Kooy, SC Steffensen. Functional switch in $GABA_A$ receptors on VTA GABA neurons by chronic ethanol. Alcoholism: Clinical and Experimental Research (2013). 37($S2$) 238A (908).

SI Shin, JK Mabey, DN White, CA Nielson, ND Schilaty, DH Taylor, J Wu, M McIntosh, SC Steffensen. Ethanol inhibits GABA neurons in the VTA and dopamine release in the nucleus accumbens via $\alpha 6$ nicotinic receptors on GABA terminals. Alcoholism: Clinical and Experimental Research (2013). 37($S2$) 233A(909).

References available upon request.