

Vy Ai Vo

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Perception & Cognition Laboratory
Neurosciences Graduate Program
University of California, San Diego
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EDUCATION

- 2013 – present: Ph.D. candidate in Neurosciences (Computational specialization)
University of California, San Diego, La Jolla, CA
Advisor: John T. Serences
- 2007 – 2011: B.A. with High Honors, double major in Biology & Cognitive Science
Swarthmore College, Swarthmore, PA
Advisors: Kathleen K. Siwicky & Frank H. Durgin

PUBLICATIONS

- Itthipuripat, S.I.*, **Vo, V.A.***, Sprague, T.C., Serences, J.T. (submitted). A basis for irrational value-based decision-making in human early visual cortex.
- Sprague, T.C.*, Adam, K.C.S.*, Foster, J.J.*, Rahmati, M.*, Sutterer, D.W.*, **Vo, V.A.*** (2018). Inverted encoding models assay population-level stimulus representations, not single-unit neural tuning. *eNeuro*.
- Sprague, T.C., Itthipuripat, S., **Vo, V.A.**, and Serences, J.T. (2018). Dissociable signatures of visual salience and behavioral relevance across attentional priority maps in human cortex. *Journal of Neurophysiology*.
- Vo, V.A.**, Sprague, T.C., and Serences, J.T. (2017). Spatial tuning shifts increase the discriminability and fidelity of population codes in visual cortex. *Journal of Neuroscience*. Data and code on [Open Science Framework](#).
- Vo, V.A.**, Li, R., Kornell, N., Pouget, A., Cantlon, J.F. (2014). Young children bet on their numerical skills: Metacognition in the numerical domain. *Psychological Science*.

* These authors made equal contributions.

SELECTED PRESENTATIONS

- Vo, V.A.**, Serences, J.T. (2018). The effects of attentional scope on voxel receptive fields and population codes for space. Poster at Vision Sciences Society meeting, St. Pete Beach, FL.
- Vo, V.A.**, Sutterer, D.W., Foster, J.J., Sprague, T.C., Awh, E., Serences, J.T., (2017). Neural representations of spatial position recalled from long-term and short-term memory diverge across the cortical hierarchy. Talk at Vision Sciences Society meeting, St. Pete Beach, FL.
- Itthipuripat, S., **Vo, V.A.**, Sprague, T.C., Serences, J. (2017). Reward and selection history shape neural representations of an attentional priority in human visual and parietal cortex. Poster at Society for Neuroscience meeting, Washington, D.C.

- Itthipuripat, S., Chang, K., **Vo, V.**, Serences, J. (2017). Dissociable effects of stimulus strength, task demands, and training on occipital and parietal EEG signals during perceptual decision-making. Talk at Vision Sciences Society meeting, St. Pete Beach, FL.
- Sprague, T.C., Itthipuripat, S., **Vo, V.A.**, and Serences, J.T. (2016). Graded representations of stimulus salience and attentional priority across visually-responsive cortex. Nanosymposium talk at Society for Neuroscience meeting, San Diego, CA.
- Vo, V.A.**, Sprague, T.C., Serences, J.T. (2016). Spatial attention modulates voxel receptive fields to boost the fidelity of multi-voxel stimulus representations. Nanosymposium talk at Society for Neuroscience meeting, San Diego, CA.
- Vo, V.A.**, Herrera, E.I., Serences, J.T. (2016). Orientation selective responses as measured with EEG track both featural and temporal attention enhancements. Poster at Vision Sciences Society meeting, St. Pete Beach, FL.
- Henderson, M., Chunharas, C., **Vo, V.**, Sprague, T., Serences, J. (2016). Reconstructing 3D stimuli using BOLD activation patterns recovers hierarchical depth processing in human visual and parietal cortex. Poster at Vision Sciences Society meeting, St. Pete Beach, FL.
- Vo, V.A.**, Sprague, T.C., Serences, J.T. (2015). Linking attentional modulations of single-voxel population receptive fields and region-level spatial reconstructions. Poster at Society for Neuroscience meeting, Chicago, IL.
- Emerson, R., **Vo, V.A.**, Kurtz, T., Cantlon, J.F. (2014). Mathematics expertise predicts structural and functional variability in the intraparietal sulcus. Nanosymposium talk at Society for Neuroscience meeting, Washington, D.C.
- Emerson, R., **Vo, V.**, Cantlon, J.F. (2013). Longitudinal changes in children's IPS responses are number-specific and mathematics related. Poster at Cognitive Neuroscience Society meeting, San Francisco, CA.
- Vo, V.**, Li, R., Kornell, N., Cantlon, J.F. (2012). Metacognition in children is specific to domain knowledge. Poster at Cognitive Science Society meeting, Sapporo, Japan.
- Vo, V.**, Ning, A., Bhattacharjee, A., Li, Z., Durgin, F. (2011). Pointing accurately at a target doesn't require perceiving its location accurately. *Journal of Vision*, 11(11):944. Poster at Vision Sciences Society meeting, Naples, FL.
- Vo, V.** and Siwicki, K.K. (2011). Early courtship experience increases the sexual receptivity of female *Drosophila melanogaster*. Talk presented at East Coast Nerve Net, Woods Hole, MA.

AWARDS AND HONORS

- Vision Sciences Society Student Travel Award (2017)
 Center for Visual Sciences Symposium Student Travel Award (2016)
 NSF Graduate Research Fellowship (awarded 2013)
 Howard Hughes Medical Institute Summer Research Fellow (2010)

TEACHING & MENTORSHIP

2013 – present *Graduate student mentor* for independent study students and volunteers (UCSD).

- Isabel Asp (Psychology); Kaylee Craig; Eduardo Herrera; Avery Rogers; Matthew Jaconetta (Psychology); Kia Shams; Wenjing Dong (Psychology); Rie Davis (Psychology); Naomi Lee (Psychology).
- Spring 2016 *Student Lecturer*, Fundamentals in Statistics and Computation for Neuroscientists course. This student-taught, student-led, and student-organized course serves as an introduction to concepts and techniques necessary for students to succeed in the Computational Neuroscience specialization track in the Neurosciences Graduate Program at UCSD. Prepared two video lectures and wrote accompanying quizzes and problem sets on basic hypothesis testing and permutation testing.
- Spring 2015 *Teaching Assistant*, Data Analysis in MATLAB graduate course (taught by John Serences). Reviewed student code & algorithmic solutions to weekly problem sets on advanced topics in data analysis, such as bootstrapping & permutation statistics, time-frequency analysis, pattern classification, and nonlinear curve & surface fitting.
- Spring 2015 *Guest Lecturer*, Sensation & Perception undergraduate course (taught by John Serences). Lectured on sensory development for this Psychology core course.
- 2014 - 2015 *Teaching Assistant*, Neurosciences Graduate Program Boot Camp for incoming students (taught by Stefan Leutgeb & Jing Wang). Led computational neuroscience workshops & labs designed to familiarize students with common programming & data analysis techniques using Python and MATLAB.
- 2011 - 2013 *Graduate student mentor* for independent study students (University of Rochester). Laura Ackerman (Brain & Cognitive Sciences), undergraduate thesis; Emily Kasman (Brain & Cognitive Sciences); Matthew Mullen (Neurosciences).

OTHER ACADEMIC TRAINING

Computational Neuroscience: Vision, Cold Spring Harbor Laboratory summer course (2016)

PROFESSIONAL ACTIVITIES

Academic Memberships: Vision Sciences Society (2014 – present), Society for Neuroscience (2013 – 2017)

Ad-hoc reviewer: Cerebral Cortex, eNeuro, Journal of Cognitive Neuroscience, Neuroimage, Proceedings of the National Academy of Sciences

SCIENCE OUTREACH

Neurosciences Graduate Program Outreach Program, San Diego, CA (2013 – current).

Regularly volunteer to teach an introductory neuroscience class with a comparative neuroanatomy lab at local high schools with other graduate students. Volunteered at the San Diego Science Expo (2013 & 2014) to run interactive neuroscience labs and answer questions for the general public.

Expanding Your Horizons Mentor, San Diego, CA (2013).

Hosted middle school girls attending several workshops run by local STEM professionals.

Rochester Museum and Science Center, Rochester, NY (2012).

Interactive cognition & evolution presentation for all museum patrons.

Science Radio Host at WSRN 91.5FM, Swarthmore, PA (2010-2011).

Co-host of the Science Alliance Power Hour science news show.

Expanding Your Horizons Committee Member & Mentor, Swarthmore, PA (2009-2011).

Planning committee member, website administrator, workshop teaching assistant, and mentor for an annual one-day conference for middle-school girls interested in science and math.

PREVIOUS RESEARCH EXPERIENCE

Research Assistant & Lab Manager, Concepts, Actions, and Objects Lab at the University of Rochester with Jessica F. Cantlon & Brad Z. Mahon (2011-2013).

Collected, pre-processed, and analyzed structural and functional MRI data on children (ages 4 to 12) and adults in BrainVoyager QX. Wrote batch processing scripts for functional data. Developed analysis pipeline for group averaged cortical thickness measurements.

Administered standardized intelligence and aptitude tests to children and adults. Developed child-friendly behavioral experiments with a touch-screen monitor or real objects.

Wrote scripts for stimulus creation and presentation, data analysis, and database management in various languages (MATLAB, E-Prime, REALBasic, FileMaker Pro).

Handled rhesus macaques for behavioral testing.

Managed undergraduate student projects, subject scheduling, laboratory supplies, and data collection, among other administrative duties.

Psychology undergraduate research with Frank H. Durgin at Swarthmore College (2010 – 2011).

Ran a visual adaptation study in which human subjects experienced altered optic flow in a virtual reality environment while navigating with intact proprioceptive feedback.

Biology undergraduate research with Kathleen K. Siwicki at Swarthmore College (2009 – 2011).

Characterized novel measures of female mating receptivity during courtship in analogy to the male *Drosophila melanogaster* long-term memory paradigm.

Adapted open-source image processing code (Python) to track fly motion for use in courtship behavior measures of *D. melanogaster*. Optimized digital video recording setup for image processing.

Fruit fly husbandry, genetic crossing, whole brain dissections, immunohistochemistry and confocal imaging.

Computer Science Research Experience for Undergraduates (REU) with Francisco Valero-Cuevas at University of Southern California (2009).

Helped generate data on the biomechanics of the index finger. Used a motor system that mechanically manipulates cadaver hand tendons and records force, position, etc.

Improved real-time control of motors and actuators connected to the cadaver hand, as well as restructured and wrote documentation for the LabVIEW script to improve data collection.