

CURRICULUM VITAE

JING XU

CONTACT INFO

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Google scholar page

<https://scholar.google.com/citations?user=jKcs76MAAAAJ&hl=en>
H-index: 14 I-index: 16

Citizenship

United States

EDUCATION

- Ph.D. Psychology, University of California, Berkeley, 2011
Advisors: Richard B. Ivry, Ph.D., Thomas L. Griffiths, Ph.D.
Thesis committee: Thomas L. Griffiths, Ph.D.,
Richard B. Ivry, Ph.D.,
Terry Regier, Ph.D.
Dissertation title: *Flexibility and Biases in Cognitive Control and Categorization*
- M.S. Psychology, Iowa State University, 2005
B.S. Computer Science, Iowa State University, 2003
M.A. English, Shandong University, P.R. China, 1999
B.A. English, Shandong University, P.R. China, 1996

PROFESSIONAL APPOINTMENTS

Assistant Professor, Department of Kinesiology, Mary Frances Early College of Education, The University of Georgia, 2020 - present

Assistant Research Scientist, The Malone Center for Engineering in Healthcare, Writing School of Engineering, Johns Hopkins University, 2017–2020

Focus: Neurobiology of dexterous control of the hand and recovery of skilled motor function after brain injury such as stroke.

Post-doc Research Fellow, Department of Neurology, Johns Hopkins University, 2011-2017

Focus: Recovery of upper-limb motor function after stroke, motor skill learning.

Advisor: John W. Krakauer, M.D.

Junior Specialist Researcher, Cognition Action Laboratory, University of California, Berkeley, 2005–2006

Focus: Inhibitory control and category learning in Parkinson's Disease.

Supervisor: Richard B. Ivry, Ph.D.

FUNDING SUPPORT

The Malone Seed Fund: Developing and Piloting Therapies for Hand Dexterity Rehabilitation. (\$124,850, 2018-2019)

HONORS AND AWARDS

Travel Award, Gordon Research Conference for Neurobiology of Cognition, 2014
Travel Award, 32nd Annual Conference of the Cognitive Science Society, 2010
Travel Award, Neural Information Processing Systems Conference, 2008
Diabold Fellowship, Department of Psychology, University of California, Berkeley, 2006
Power Award, Department of Psychology, University of California, Berkeley, 2006
Outstanding Senior Award, Computer Science Department, Iowa State University, 2002
Upsilon Pi Epsilon Honor Society for the Computing Science, 2002

TEACHING SERVICES

Instructor, Department of Kinesiology, University of Georgia
Course title: Biomechanics (Fall 2020)

Guest Lecturer, Department of Neuroscience, Johns Hopkins University.
Course title: Neuroscience and Cognition II (Fall 2019, Spring 2020)
Duties: Designing lecture material, exam questions; presenting the lecture and grading

Graduate Student Instructor, Department of Psychology, University of California, Berkeley.
Course title 1: *Introduction to Cognitive Science* (2007)
Course title 2: *Cognitive Neuroscience* (2009)
Duties: Designing and conducting weekly discussion/practice sessions; assisting for preparing for course reading and examination materials, grading

Teaching Assistant, Computer Science Department, Iowa State University.
Course title: *Data Structures Using C++* (2001 – 2003)
Duties: Designing course homework and examination materials; holding lab hours for assisting with programming problems; grading

Instructor, Department of English, School of Foreign Languages and Literature, Shandong University, China.
Course title: *Extensive Reading for Second-year English Majors* (1997 – 1998)
Duties: Teaching two classes independently; preparing for teaching materials; conducting examinations and grading

PUBLICATIONS

Journal articles

Mawase, F., Cherry-Allen, K., **Xu**, J., Uehara, Shintaro, Celnik, P.A. (2020). Pushing the boundaries by hand: intensive piano-like training improved hand dexterity in chronic stroke. *Neurorehabilitation and Neural Repair*.

Xu*, J., Branscheidt*, M., Schambra, H.M., Steiner L., Widmer, M., Diedrichsen, J., Goldsmith, J., Lindquist, M., Kitago, T., Luft, A.R., Krakauer J.W., Celnik, P.A., and the SMARTS Study Group (2019). Rethinking interhemispheric imbalance as a target for neurorehabilitation. *Annals of Neurology*.

- Schambra, HM, **Xu***, J., Branscheidt*, M., Linstead, M., Kim, N., Harran, M., Luft, A., Krakauer J.W., Celnik, P.A. (2019). Differential post-stroke motor recovery in an arm versus hand muscle in the absence of motor evoked potentials. *Neurorehabilitation and Neural Repair*.
- Krakauer, JW, Hadjiosif, A., **Xu**, J., Wong, A. Haith, A. Motor Learning (2019). *Comprehensive Physiology*.
- Ejaz*, N., **Xu***, J., Hertler, B., Branscheidt, M., Widmer, M., Kim, N., Harran, M., Cortes, J.C., Celnik, P.A., Kitago, T., Luft, A.R., Krakauer J.W., Diedrichsen, J. (2018). Evidence for subcortical origin of mirror movements: a longitudinal stroke study. *Brain*.
- Ejaz*, N, **Xu***, J, Branscheidt M, Hertler B, Schambra H, Widmer M, Faria AV, Harran M, Cortes JC, Kim N, Celnik PA, Kitago T, Luft A, Krakauer JW, Diedrichsen J. (2019). Reply: Further evidence for a non-cortical origin of mirror movements after stroke. *Brain*.
- Xu***, J., Ejaz*, N., Hertler, B., Branscheidt, M., Widmer, M., Faria, A.F., Harran, M., Cortes, J.C., Kim, N., Celnik, P.A., Kitago, T., Luft, A.R., Krakauer J.W., Diedrichsen, J. (2017). Separable systems for recovery of finger strength and control after stroke. *Journal of Neurophysiology*.
- Cortes, J.C., Goldsmith J., Harran, M.D., **Xu**, J., Kim, N., Luft, A.R., Celnik, P., Krakauer, J.W., Kitago, T. (2017). A short and distinct time window for recovery of arm motor control early after stroke revealed with a global measure of trajectory kinematics. *Neurorehabilitation and Neural Repair*.
- Xu**, J., Haith, A., Krakauer, J.W. (2015) Motor control of the hand before and after stroke. In: Kansaku, K., Cohen, L.G., Birbaumer, N. ed. *Systems Neuroscience: From Laboratory to Clinical Practice*. First Ed. Springer.
- Xu**, J., Westrick, Z., Ivry, R.B. (2014). Selective Inhibition of a Multi-Component Response Can Be Achieved Without Cost. *Journal of Neurophysiology*.
- Xu**, J., Dowman, M., & Griffiths, T.L. (2013). Replicating color term universals through human iterated learning. *Proceedings of the Royal Society, Series B*.
- Shlerf, J.E., **Xu**, J., Klemfuss, N.M., Griffiths, T.L., & Ivry, R.B. (2013). Individuals with cerebellar degeneration show similar learning adaptation deficits with large and small visuomotor errors. *Journal of Neurophysiology*.
- Stoloff, R.H., Taylor, J.A., **Xu**, J., Ridderikhoff, A., Ivry, R.B. (2011). Effect of reinforcement history on hand choice in an unconstrained reaching task. *Frontiers in Neuroscience*, 5, 1-14.
- Xu**, J., & Griffiths, T.L. (2010). A rational analysis of the effects of memory biases on serial reproduction. *Cognitive Psychology*.
- Xu**, J. & Malmberg, K.J. (2007). Modeling the effects of verbal- and nonverbal-pair strength on associative recognition, *Memory & Cognition*.
- Malmberg, K. J. & **Xu**, J. (2007). On the flexibility and on the fallibility of associative memory, *Memory & Cognition*. 35(3), 545-556.
- Malmberg, K.J. & **Xu**, J. (2006). The Influence of Averaging and Noisy Decision Strategies on the Recognition Memory ROC. *Psychonomic Bulletin & Review*.

Peer-reviewed conference proceedings

- Xu, J., Ejaz, N., Hertler, B., Branscheidt, M., Widmer, M., Faria, A.F., Harran, M., Cortes, J.C., Kim, N., Celnik, P.A., Kitago, T., Luft, A.R., Krakauer J.W., Diedrichsen, J. (2015).** Two systems mediating hand recovery after stroke. *Translational and Computational Motor Control (TCMC)*.
- Carstensen, A., **Xu, J., Smith, C., and Regier, T. (2015).** Language evolution in the lab tends toward informative communication. In R. Dale et al. (Eds.), *Proceedings of the 37th Annual Meeting of the Cognitive Science Society*.
- Xu, J., Griffiths, T.L., & Dowman, M. (2010).** Replicating color term universals through human iterated learning. *Proceedings of the 32nd Annual Conference of the Cognitive Science Society*.
- Xu, J. & Griffiths, T.L. (2009, Spotlight).** How memory biases affect information transmission: A rational analysis of serial reproduction. *Advances in Neural Information Processing Systems 21*.
- Xu, J., Reali, F., & Griffiths, T.L. (2008).** A formal analysis of cultural evolution by replacement. *Proceedings of the 30th Annual Conference of the Cognitive Science Society*.

Manuscript in preparation

- Xu, J., Ma, T., Kumar, S., Olds, K., Brown, J., Carducci, J., Forrence, A., Krakauer, J.W.** What does evolution endow humans with increased finger individuation?
- Xu, J., Kumar, S., Ma, T., Olds, K., Brown, J., Carducci, J., Forrence, A., Krakauer, J.W.** Distinct patterns of finger individuation impairment in 3D after stroke.
- Xu, J., Yu, M., Vess, M., Haith, A.,** Dynamics of action preparation in conflicting environments.
- Xu, J., Berlot, E., Ejaz, N., Kitago, T., Hertler, B., Branscheidt, M., Widmer, M., Kim, N., Harran, M., Cortes, J.C., Celnik, P.A., Luft, A.R., Krakauer J.W., Diedrichsen, J.** Cortical neural activity patterns during recovery of hand function.
- Branscheidt, M., Ejaz, N., **Xu, J., Widmer, M., Harran, M., Cortes, J.C., Kitago, T., Celnik, P.A., Diedrichsen, J., Luft, A., Krakauer J.W.** No evidence for cortical reorganization after subcortical stroke using resting state fMRI.

INVITED TALKS AND CONFERENCE PRESENTATIONS

The Malone Center for Engineering and Healthcare Faculty Retreat, Baltimore, MD, 2019
 Title: Tracking and Rehabilitating Hand Dexterity After Stroke.

Neural Control of Movement (NCM) (Panel leader and presenter), Toyama, Japan, 2019
 Panel title: *Multi-dimensional Dexterous Hand Function and Recovery*
 Presentation title: *Finger individuation as a hallmark for hand dexterity*.

Johns Hopkins Sensorimotor Research Day, Johns Hopkins University, Baltimore, MD, 2016
 Title: *Rethinking interhemispheric imbalance as a target for neurorehabilitation*.

Partnering toward Discovery – Postdoctoral Lecture Series, Johns Hopkins University, Baltimore, MD, 2016
 Title: *Two systems mediating hand recovery after stroke*.

Translational and Computational Motor Control (TCMC), Chicago, IL, 2015
 Title: *Tracking the recovery of fine finger control and strength after stroke*.

Gordon Research Seminar for the Neurobiology of Cognition, Sunday Rivers, MA, 2014
Title: Tracking spontaneous recovery of finger individuation after stroke.

Cognitive Seminar, Department of Psychology, University of California, Berkeley, CA, 2011
Title: Flexibility in cognitive control.

Cognitive Seminar, Department of Psychology, Stanford University, CA, 2010
Title: Using iterated learning to explore human inductive biases in memory and categorization.

32th Annual Conference of the Cognitive Science Society, Portland, OG, 2010
Title: Replicating Color Term Universals through Human Iterated Learning.

40th Annual Meeting of the Society for Mathematical Psychology, Costa Mesa, CA, 2007
Title: A Bayesian analysis of serial reproduction.

Annual Retreat of Helen Wills Neuroscience Institute, University of California, Berkeley, Granlibakken, CA, 2007
Title: Do behaviorally inhibited responses induce specific or generic inhibition of the motor system?

CONFERENCE POSTERS (past 7 years)

Xu, J., Kumar, S., Olds, K., Brown, J., Carducci, J., Forrence, A., John W. Krakauer, (October 2019). Assessing hand dexterity after stroke in 3D (dynamic poster). The Society for Neuroscience Annual Meeting, Chicago.

Xu, J., Yu, M., Haith, A., (November 2018). Level of conflict influences action initiation but not action preparation. The Society for Neuroscience Annual Meeting, San Diego.

Mawase, F., Cherry-Allen, K., Xu, J., Uehara, S., Celnik, P., (November 2018). Training out of abnormal hand synergy patterns improves dexterity in patients with chronic stroke.

Xu, J., Elphage, L., Haith, A., (May 2018). Action selection under conflict: replacement versus suppression of competing response options. The Society for the Neural Control of Movement, Santa Fe.

Xu*, J., Branscheidt*, M., Schambra, HM., Kim, N., Steiner L., Kitago, T., Luft, A.R., Krakauer J.W., Celnik, P.A., (November 2016). Abnormal interhemispheric interactions after stroke emerge only in the chronic phase. The Society for Neuroscience Annual Meeting, San Diego.

Akazawa, K, Xu, J, Branscheidt, M., Kitago, T., Luft, A.R., Celnik, P.A., Krakauer J.W., Faria, A.F., (November 2016). Changes in cortical connectivity revealed by resting-state fMRI in acute subcortical stroke correlate with long-term motor recovery. The Society for Neuroscience Annual Meeting, San Diego.

Xu*, J., Ejaz*, J.C., Kitago, T., Hertler, B., Branscheidt, M., Widmer, M., Kim, N., Harran, M., Cortes, J.C., Celnik, P.A., Luft, A., Krakauer J.W., Diedrichsen, J., (November 2015). Changes in neural activity patterns during recovery of fine finger control after stroke. The Society for Neuroscience Annual Meeting, Chicago.

Xu*, J., Ejaz*, N., Kitago, T., Hertler, B., Branscheidt, M., Widmer, M., Faria, A.F. Kim, N., Harran, M., Cortes, J.C., Kim, N., Celnik, P.A., Luft, A., Krakauer J.W., Diedrichsen, J., (April 2015). The control of finger individuation and strength recover independently after stroke. The Society for the Neural Control of Movement, Charleston.

- Ejaz*, N., Xu*, J., Kitago, T., Hertler, B., Branscheidt, M., Widmer, M., Kim, N., Harran, M., Cortes, J.C., Celnik, P.A., Luft, A., Krakauer J.W., Diedrichsen, J., (April 2015). Patterns of mirroring and enslaving of finger movements after stroke suggest shared representation of digit movements across hemispheres. The Society for the Neural Control of Movement, Charleston.
- Diedrichsen, J. Xu, J., Ejaz, J.C., Kitago, T., Hertler, B., Branscheidt, M., Widmer, M., Kim, N., Harran, M., Cortes, J.C., Celnik, P.A., Luft, A., Krakauer J.W., (April 2015). Changes in neural activity patterns during recovery of hand function. The Society for the Neural Control of Movement, Charleston.
- Cortes J.C., Goldsmith J., Harran M.D., XU J., Kim N., Stein J., Luft A., Celnik P., Krakauer J. W., Kitago T., (November 2014). A limited time window for arm motor control recovery after stroke. The Society for Neuroscience Annual Meeting, Washington DC.
- Xu*, J., Ejaz*, N., Kim, N., Harran, M., Berard, J., Cortes, JC, Kitago, T., Hertler, B., Branscheidt, M., Celnik, P.A., Luft, A., Krakauer J.W., Diedrichsen, J., (November 2013). Tracking spontaneous recovery of digit individuation after stroke. The Society for Neuroscience Annual Meeting, San Diego.
- Schambra, HM, Linstead, M., Xu, J., Berard, J., Kim, N., Harran, M., Branscheidt, M, Luft, A., Krakauer J.W., Celnik, P.A., (November 2013). Neurophysiological signatures of proximal and distal recovery after stroke. American Society of Neurorehabilitation Annual Meeting, San Diego.
- Xu, J., Haith, A.M., Okolie, J., Krakauer, J.W., (October 2012). Is interlimb transfer of motor learning model-based or model-free? The Society for Neuroscience Annual Meeting, New Orleans, Louisiana.

ACADEMIC SERVICE

Grant Reviewer

NSF (US) Panelist, 2019

Agence Nationale De La Recherche (ANR) (France), 2019

Journal Reviewer

American Journal of Physical Medicine & Rehabilitation

Behavioral Neuroscience

Brain

Cortex

Cerebral Cortex

eLife

European Journal of Neuroscience

Experimental Brain Research

Frontiers in Systems Neuroscience

IEEE Transactions on Neural Systems and Rehabilitation Engineering

Journal of Neurophysiology

Journal of Cognitive Neuroscience

Journal of Neuroscience

Journal of Experimental Psychology: Human Perception and Performance

Journal of Experimental Psychology: Learning, Memory, and Cognition

Neuron

NeuroImage

Neurorehabilitation and Neural Repair

PLoS Biology

PLoS One

Translational Neural Systems Rehabilitation Engineering

PROFESSIONAL MEMBERSHIPS

Society for Neuroscience

Society for the Neural Control of Movement
Cognitive Science Society
Cognitive Neuroscience Society
Society for Mathematical Psychology
Women in Cognitive Science