SOPHIA VINCI-BOOHER

Email: svincibo@iu.edu Last updated: September 3, 2020

EDUCATION

Ph.D. Psychology & Neural Science, Indiana University, Bloomington, Indiana

B.A. French, Indiana University, IUPUI Campus, Indianapolis, Indiana

B.S. Biomedical Engineering, Purdue University, IUPUI Campus, Indianapolis, Indiana

POSITIONS

4/2019 – *present*	Postdoctoral Researcher, *Dept. of Psychological & Brain Sciences*, PI: Franco Pestilli, Indiana University, Bloomington, IN
8/2013 – 3/2019	Graduate Research Assistant*, Dept. of Psychological & Brain Sciences*, PI: Karin James, Indiana University, Bloomington, IN
9/2011 – 7/2013	Neuropsychology Technician, *Dept. of Neurology & Neuropsychology*, PI: Brenna McDonald, Indiana University Health Physicians, Indianapolis, IN
1/2010 – 7/2013	Staff Research Assistant, *Dept. of Medical & Molecular Genetics*, PI: Tatiana Foroud, Indiana University, School of Medicine, Indianapolis, IN
9/2010 – 9/2011	Staff Research Assistant, *Dept. of Neurology*, PI: Elizabeth Sowell, University of California, Los Angeles, CA
8/2009 – 1/2010	Undergraduate Research Assistant, *Dept. of Anthropology*, PI: Richard Ward, Indiana University, Indianapolis, IN
8/2007 – 1/2010	Undergraduate Research Assistant, *Dept. of Anatomy & Cell Biology*, PI: Feng Zhou, Indiana University, School of Medicine, Indianapolis, IN
8/2006 – 5/2007	Undergraduate Research Assistant, *Dept. of Computer & Electrical Engineering*, PI: Eliza Yingzi Du, Purdue University, Indianapolis, IN

JOURNAL PUBLICATIONS

Vinci-Booher, S., & James, K.H. (2020). Visual experiences of letter production contribute to the development of the neural systems supporting letter perception. *Developmental Science, 23*(5), 1-17. (Cover article.)

Merritt, E., Swain, S., **Vinci-Booher, S.**, & James, K.H. (2020). Constraining stroke order during manual symbol learning hinders subsequent recognition in children under 4 ½ years. *Frontiers in Psychology, 11*.

Vinci-Booher, S., & James, K.H. (2020). Ecological validity of experimental set-up affects parietal involvement during letter production. *Neuroscience Letters, 731.*

Vinci-Booher, S., Cheng, H., & James, K.H. (2019). An analysis of the brain systems involved with producing letters by hand. *Journal of Cognitive Neuroscience, 31*(1), 138-154.

Vinci-Booher, S., Sturgeon, J., James, T., & James, K.H. (2018). The MRItab: An MR-compatible touchscreen with video-display. *Journal of Neuroscience Methods,* 306, 10-18.

Zemlock, D., **Vinci-Booher, S.**, & James, K.H. (2018). Visual-motor symbol production facilitates letter knowledge in young children. *Reading and Writing*, 31, 1255-1271.

Vinci-Booher, S., James, T. W., & James, K. H. (2016). Visual-motor functional connectivity in preschool children emerges after handwriting experience. *Trends in Neuroscience and Education*, *5*(3), 107-120.

Vinci-Booher, S., & James, K. H. (2016). Neural substrates of sensorimotor processes: Letter writing and letter perception. *Journal of Neurophysiology, 115*(1), 1-4.

Foroud, T., Wetherill, L., **Vinci-Booher, S.**, Moore, E.S., Ward, R.E., Hoyme, H.E., et al. (2012). Relation over time between facial measurements and cognitive outcomes in alcohol exposed children. *Alcoholism: Clinical & Experimental Research,* 36(9), 1634-1646.

Anthony, B., **Vinci-Booher, S.**, Wetherill, L., Ward, R.E., Goodlett, C., & Zhou, F.C. (2010). Alcohol induced facial dysmorphology in C57BL/6 mouse models of fetal alcohol spectrum disorder. *Alcohol,* 44(7-8), 659-671.

CONFERENCE PROCEEDINGS PUBLICATIONS

Fang, S., Liu, Y., Huang, J., **Vinci-Booher, S.**, Anthony, B., & Zhou, F.C. (2010). Surface feature analysis using video volumes of mouse embryos for fetal alcohol syndrome classification. *International Conference on Digital Image Computing: Techniques and Applications* (pp. 22-26). Sydney, Australia: Institute of Electrical and Electronics Engineers. (57% acceptance rate).

Fang, S., Liu, Y., Huang, J., **Vinci-Booher, S.**, Anthony, B., & Zhou, F.C. (2009). Facial image classification of mouse embryos for the animal model of fetal alcohol syndrome. *Symposium on Applied Computing* (852-856). Hawaii: Association for Computing Machinery. (29% acceptance rate).

Belcher, C., Terry, M., **Vinci-Booher, S.**, & Du, Y. (2007). Video image based multimodal face recognition system. *Illinois-Indiana Section Conference* (paper 14-1-10). Indiana: American Society for Engineering Education.

BOOK CHAPTER

James, K.H., **Vinci-Booher, S.**, & Muñoz-Rubke, F. (2017). The impact of multimodal-multisensory learning on human performance and brain activation patterns. In S. Oviatt, B. Schuller, & Cohen, P. (Eds.), *Handbook of Multimodal-Multisensor Interfaces*. San Rafael, CA: Morgan & Claypool Publishers.

INTELLECTUAL PROPERTY

"Electronic tablet for use in functional MRI," *US Patent Application No. 62/370, 372*, filed August 3, 2016, (Sturgeon, J., Shroyer, A., **Vinci-Booher, S.**, & James, K.H., applicants). Amended February 4, 2019.

GRANTS – CURRENT

NSF, Social, Behavioral and Economic Sciences Postdoctoral Research Fellowships (SPRF),
Title: *Harnessing machine learning and cloud computing to test biological models of the role of white matter in human learning*

Indiana Clinical and Translational Sciences Institute, Core Pilot Grant,
Title: *Development and validation of a visual field mapping protocol for children*

GRANTS – PAST

2017 – 2019	Translational Research Pilot Grant from the Johnson Center for Innovation and Translational Research at Indiana University
2017	Groups STEM Summer Research Experience at Indiana University
2015 –2017	Indiana University Imaging Research Facility Graduate Student Brain Scan Credit for fMRI scanning

FELLOWSHIPS

9/2020 – *present*	NSF, Social, Behavioral and Economic Sciences Postdoctoral Research Fellowships (SPRF)
4/2020 – 8/2020	Indiana University Office of the Vice President for Research Emerging Area of Research Initiative, Learning: Brains, Machines and Children
4/2019 – 3/2020	Developmental Training Grant, National Institute of Health through Indiana University [Grant Number: 5 T32 HD007475-24]
8/2018 – 3/2019	Indiana University College of Arts & Sciences Dissertation Research Fellowship
6/2017 – 8/2017	Indiana University Office of the Vice President for Research Emerging Area of Research Initiative, Learning: Brains, Machines and Children
8/2015 – 7/2016	Developmental Training Grant, National Institute of Health through Indiana University [Grant Number: 2 T32 HD007475-21]
8/2014 – 7/2015	Developmental Training Grant, National Institute of Health through Indiana University [Grant Number: 5 T32 HD007475-20]

TRAVEL AWARDS

2020	Travel and Accommodations for NeuroHackademy (postponed to 2021)
2019	Cognitive Development Society (CDS) Pre-Conference Travel Award: Open Developmental Science
2019	Advanced Computational Neuroscience Network (ACNN) Big Data Neuroscience Conference Travel Award
2017, 2018, 2019	Indiana University Provost's Travel Award for Women in Science
2015 – 2019	Program in Neuroscience College of Arts & Sciences Travel Award

AWARDS & HONORS

2019	Federation of Associations in Behavioral & Brain Sciences (FABBS) Doctoral Dissertation Research Excellence Award
2019	J.R. Kantor Graduate Award for Distinction in Research
2015	Commendation on Doctoral Qualifying Examinations
2015	James S. McDonnell Foundation Fellowship
2014	Graduate student poster winner at the Center of Excellence for Women in Technology Conference
2011	Runner-Up for Rotary International Ambassadorial Scholarship
2009	International Experience Scholarship
2009	Margaret A. Cook Scholarship for Foreign Study
2009	Marius J. Fauré Family Scholarship for Students of French Language and Literature
2006, 2007, 2008	Commitment to Engineering Excellence Scholarship
2006	Multidisciplinary Undergraduate Research Initiative Scholar

MANUSCRIPTS IN PROGRESS

Vinci-Booher, S., James, T.W., & James, K.H. Visual-motor contingency during symbol production contributes to the development of the neural systems supporting symbol perception and concurrent gains in symbol recognition. Manuscript under review.

Vinci-Booher, S., Caron, B., Bullock, D., James, K.H., & Pestilli, F. White matter microstructure of the posterior-vertical tracts clusters with the ventral stream tracts in development and predicts behavioral variability. Manuscript in preparation.

Cheng, H., **Vinci-Booher, S.**, Caron, B., Wang, J., Newman, S., & Pestilli, F. Denoising diffusion-weighted magnetic resonance data using convolutional neural networks. Manuscript in preparation.

Vinci-Booher, S., Sehgal, N., & James, K.H. Visual and motor experiences of handwriting result in visual recognition gains. Manuscript in preparation.

Vinci-Booher, S., & James, K.H. The development of the neural systems supporting letter production. Manuscript in preparation.

ORAL PRESENTATIONS

Vinci-Booher, S., & Pestilli, F. (2020, September). Posterior-vertical white matter tracts cluster with ventral stream tracts in development and predict behavioral variability. Data blitz presented at the Advanced Computational Neuroscience Network (ACNN) Conference. Virtual conference.

Vinci-Booher, S., James, K.H., & Pestilli, F. (2019, November). Development of vertical white matter pathways connecting dorsal and ventral visual streams. Oral presentation presented at the Brain and Mind Institute at the University of Western Ontario, ON, CA.
(Invited talk.)

James, K.H., & **Vinci-Booher, S.** (2019, May). Visual Experiences During Letter Production Contribute to the Development of the Neural Systems Supporting Letter Perception. In T. Schubert, *Reading as a visual act: Recognition of visual letter symbols in the mind and brain.* Symposium conducted at the Annual Meeting of the Vision Sciences Society, St. Pete Beach, FL, USA.

Vinci-Booher, S., Nikoulina, A., James, T.W., & James, K.H. (2019, March). Sensorimotor Contingency Leads to Developmental Changes in the Neural Mechanisms Supporting Visual Recognition. Data blitz presented at the Annual Meeting of the Cognitive Neuroscience Society, San Francisco, CA, USA.

Vinci-Booher, S., & James, K.H. (2018, February). The Development of Brain Systems Supporting Handwriting and Letter Perception. Oral presentation at the Psychological and Brain Sciences Graduate Recruitment Event at Indiana University, Bloomington, IN, USA.
(Invited talk.)

Vinci-Booher, S., & James, K.H. (2017, October). The Developmental Trajectory of Brain Systems Supporting Handwriting and the Perception of Handwritten Letters. Oral presentation at the Neuroscience Seminar at Loyola University, Chicago, IL.
(Invited talk.)

James, K.H., & **Vinci-Booher, S.** (2017, October). The Development of the Neural Systems that Support Production and Perception of Handwritten Forms. In B.I. Bertenthal & J.J. Lockman, *Mind in motion: The development of cognitive processes in real time.* Symposium conducted at the Cognitive Development Society Biennial Conference, Portland, OR, USA.

Vinci-Booher, S., & James, K.H. (2016, October). Brain Systems Supporting Handwriting and Letter Perception Across Development. Oral presentation at the Psychological and Brain Sciences Alumni Homecoming & Award Banquet at Indiana University, Bloomington, IN, USA.
(Invited talk.)

Vinci-Booher, S., James, T.W., & James, K.H. (2015, March). The Influence of Visual-Motor Experiences on the Development of Brain Mechanisms Subserving Letter Perception. In E. Wakefield & M. Novack, *Comparing the effects of active and passive learning experiences through action and gesture.* Symposium conducted at the Biennial Meeting of the Society for Research in Child Development**,** Philadelphia, PA, USA.

CONFERENCE POSTER PRESENTATIONS & ABSTRACTS

Vinci-Booher, S.*, Caron, B.*, Wang, J., Newman, S., Pestilli, F.**, & Cheng, H.** (2020, June). *Denoising diffusion-weighted magnetic resonance data using convolutional neural networks*. Poster presented at the Annual Meeting of the Organization for Human Brain Mapping. Virtual conference. *Shared first author. **Shared senior author.

Vinci-Booher, S., Bullock, D., Caron, B., McPherson, B., James, K.H., & Pestilli, F. (2019, October). *The relationship between the microstructure of vertical white matter pathways and behavior in early elementary school children*. Poster presented at the Cognitive Development Society Biennial Conference, Louisville, KY, USA.

Vinci-Booher, S., Nikoulina, A., James, T.W., & James, K.H. (2019, March). *Sensorimotor contingency leads to developmental changes in the neural mechanisms supporting visual recognition.* Poster presented at the Annual Meeting of the Cognitive Neuroscience Society, San Francisco, CA, USA.

Vinci-Booher, S., Sehgal, N., & James, K.H. (2018, May). *Visual and motor experiences of handwriting contribute to gains in visual recognition*. Poster presented at the Annual Meeting of the Vision Sciences Society, St. Pete Beach, FL, USA.

DelaCuesta, C., **Vinci-Booher, S.**, & James, K.H. (2018, April). *Novel symbol learning: The maintenance of brain changes over time.* Poster presented at the Center of Excellence for Women in Technology Conference, Bloomington, IN, USA.

Harris, S., **Vinci-Booher, S.**, & James, K.H. (2018, April). *Handwriting influence on symbol learning in adults.* Poster presented at the Center of Excellence for Women in Technology Conference, Bloomington, IN, USA.

Vinci-Booher, S., & James, K.H. (2017, October). *The development of the neural systems supporting handwriting and letter perception from kindergarten to adulthood.* Poster presented at the Cognitive Development Society Biennial Conference, Portland, OR, USA.

Yearling, E., **Vinci-Booher, S.**, & James, K.H. (2017, April). *Investigating changes in functional connectivity between visual and motor systems after handwriting practice.* Poster presented at the Center of Excellence for Women in Technology Conference, Bloomington, IN, USA.

Vinci-Booher, S., Sehgal, N., Munoz-Rubke, F., & James, K.H. (2016, May). *Perceptual and motor effects of letter writing on brain regions associated with letter perception.* Poster presented at the Annual Meeting of the Vision Sciences Society, St. Pete Beach, FL, USA.

Vinci-Booher, S., Cheng, H., & James, K.H. (2016, March). *Handwriting as a visually guided action: A developmental neuroimaging study.* Poster presented at the Latin American School for Education, Cognitive, and Neural Sciences, Buenos Aires, Argentina.

Zemlock, D., **Vinci-Booher, S.**, & James, K.H. (2016, April). *Learning about letters through handwriting practice.* Poster presented at The National Conference on Undergraduate Research, Asheville, NC, USA.

Vinci-Booher, S., Engelhardt, L., James, T.W., & James, K.H. (2015, March). *Functional connections during letter perception reflect aspects of letter writing.* Poster presented at the Annual Meeting of the Cognitive Neuroscience Society, San Francisco, CA, USA.

Vinci-Booher, S., James, T.W., & James, K.H. (2015, March). *Investigating functional connectivity in the developing brain using generalized psychophysiological interactions analysis.* Poster presented at the Biennial Meeting of the Society for Research in Child Development, Philadelphia, PA, USA.

Sehgal, N., **Vinci-Booher, S.**, & James, K.H. (2015, February). *The relationship between handedness and activation in the visual cortex of the brain.* Poster presented at the Center of Excellence for Women in Technology Conference, Bloomington, IN, USA.

Vinci-Booher, S., Engelhardt, L., James, T.W., & James, K.H. (2014, March). *Investigating the development of letter perception using gPPI connectivity analysis.* Poster presented at the Center of Excellence for Women in Technology Conference, Bloomington, IN, USA.

Black, L., **Vinci-Booher, S**., Begyn, E., McDonald, B.C., Katzenstein, J. (2013, October). *Neurocognitive and behavioral profile differences in children treated for medulloblastoma.* Poster presented at the Annual Meeting of the American Academy of Clinical Neuropsychology, Chicago, IL, USA.

Highley, E., **Vinci-Booher, S.**, Begyn, E., and Katzenstein, J. (2013, June). *Evaluation of intellectual abilities pre- and post- radiation therapy in preschool aged children with solid brain tumors.* Published abstract at the Annual Meeting of the American Academy of Clinical Neuropsychology, Chicago, IL, USA.

Black, L., Begyn, E., McDonald, B., **Vinci-Booher, S.**, Katzenstein, J. (2013, June) *Neuropsychological outcomes in children with medulloblastoma.* Published abstract at the Annual Meeting of the American Academy of Clinical Neuropsychology, Chicago, IL, USA.

Black, L., Begyn, E., McDonald, B., **Vinci-Booher, S**., Katzenstein, J. (2013, June) *Behavioral outcomes in children with medulloblastoma.* Published abstract at the Annual Meeting of the American Academy of Clinical Neuropsychology, Chicago, IL, USA.

Anthony, B., **Vinci-Booher, S.,** Veene, B., Wetherill, L., Goodlett, C., Ward, R., & Zhou, F. C. (2012, June). *Effects of duration and dose of prenatal alcohol exposure via maternal liquid diet on facial dysmorphology in C57BL/6J mice.* Symposium conducted at the 35th Annual Scientific Meeting of the Research Society on Alcoholism, San Francisco, CA, USA.

Wetherill, L., **Vinci-Booher, S.,** Mattson, S., Coles, C., Sowell, E., McCarthy, N., ... & Foroud, T. (2012, June). *Gene x alcohol exposure: what does this interaction tell us about phenotypic variation in fetal alcohol spectrum disorders?* Symposium conducted at the 35th Annual Scientific Meeting of the Research Society on Alcoholism, San Francisco, CA, USA.

Fang, S., Liu, Y., Huang, J., **Vinci-Booher, S.**, Anthony, B., & Zhou, F.C. (2010, June). *Surface analysis from video volumes for fetal alcohol syndrome classification.* Poster presented at the International Conference on 3D Data Processing, Visualization, and Transmission, Sydney, Australia.

Anthony, B., **Vinci-Booher, S.**, Wetherill, L., Ward, R., Goodlett, C., & Zhou, F.C. (2009, June). *Alcohol induced facial dysmorphology in C57BL/6 mouse models of Fetal Alcohol Spectrum Disorder.* Poster presented at the Research Society on Alcoholism meeting, San Diego, CA, USA.

Belcher, C., Terry, M., **Vinci-Booher, S.**, & Du, Y. (2006, October). *Multimodal face recognition system.* Poster presented at the Indiana University Undergraduate Research Conference, Indianapolis, IN, USA.

TEACHING EXPERIENCE

Courses

Summer 2016, 2017, 2018	Instructor, *Trigonometry I (2-week course)* Foundations in Science and Mathematics Summer Program for High School Students, Indiana University, Bloomington, Indiana
Fall 2016	Lab Instructor, *P211: Methods of Experimental Psychology* Department of Psychological & Brain Sciences, Indiana University, Bloomington, Indiana
Summer 2012	Instructor, *English as a Second-Language (1-week course)* Saint Nicolas Parish High School, Môle Saint-Nicolas, Haïti

Guest Lectures

Fall 2020	*Handwriting and Letter Perception*, Course: Language & Psycholinguistics, University of Rochester, Rochester, NY
Spring 2016	*Language and the Brain*, Course: Cognitive Neuroscience, Indiana University, Bloomington, Indiana

Spring 2016	*Experimental Design in Neuroimaging*, Course: Lab in Clinical Neuroimaging, Indiana University, Bloomington, Indiana
Fall 2015	*Preprocessing of fMRI Data*, Course: Neuroimaging: Theory and Methods, Indiana University, Bloomington, Indiana
Fall 2014	*Executive Functioning*, Course: Cognitive Neuropsychology, Indiana University, Bloomington, Indiana

Teaching Assistantships

Spring 2018	Experimental Methods in Social Psychology, Indiana University, Bloomington, Indiana
Spring 2017	Cognitive Neuroscience, Indiana University, Bloomington, Indiana
Fall 2016	Research and Theory in Developmental Science, Indiana University, Bloomington, Indiana
Spring 2014	Cognitive Neuroscience, Indiana University, Bloomington, Indiana
Fall 2013	Cognitive Neuropsychology, Indiana University, Bloomington, Indiana
Fall 2009	Human Anthropology, Indiana University-Purdue University, Indianapolis, Indiana

Trainees

8/2020 – *present*	Janet Oluwayomi, Capstone Student White Matter and Learning
1/2018 – 5/2018	Sarah Harris, Capstone Student The Contribution of Visual and Motor Experiences to Symbol Learning
6/2017 – 7/2017	Amanda Ellison, Groups STEM Summer Research Experience Student Digital Analysis of Letters Handwritten by Early-literate Children
6/2016 – 5/2017	Neha Sehgal, Honors Thesis Student The Role of Dynamic Representations in Symbol Learning
8/2016 – 12/2016	Chandler Boys, Capstone Student Developing a Handwriting Training Paradigm for Early-literate Children
8/2016 – 12/2016	Emily Yearling, Capstone Student Preprocessing of fMRI Data from Child Participants
6/2015 – 8/2016	Debby Zemlock, Honors Thesis Student Learning About Letters Through Handwriting
6/2015 – 7/2015	Tayla Frizzell, Summer Research Experience for Undergraduates Student Automated Identification and Scoring of Child Handwriting Samples

DEPARTMENT, COLLEGE, & UNIVERSITY SERVICE

2019 – *present*	Grant Reviewer for Indiana Clinical and Translational Sciences Institute
2019 – *present*	Conversations in Science at IU (http://blogs.iu.edu/sciu/)

2015 – *present*	Indiana University Groups STEM Mentor, Bloomington, Indiana
2015 – 2019	Foundations in Science & Mathematics at IU, Math Course Committee
2015 – 2019	Preparing Future Faculty Conference Planning Committee at IU
2018	Graduate Student Coordinator for APS Learning Workshop at IU
2017	Emerging Areas of Research Faculty Search Committee at IU
2012 – 2013	Transportation Committee at IUPUI
2009	Hosted the Society of Women Engineers Region H Conference at IUPUI
2006 – 2009	Society of Women Engineers (SWE) Fundraising Committee at IUPUI

REVIEWER SERVICE

Journal Submissions (ad hoc reviewer): Brain Imaging & Behavior, Educational Psychology Review, Investigative Ophthalmology and Vision Science, Neuropsychologia, Reading & Writing, PLOS ONE, Psychological Bulletin & Review, Psychological Science

Conference Abstracts: Association for Psychological Science Annual Convention (2020)

Grant applications: Indiana Clinical and Translational Sciences Institute Postdoctoral Challenge (2019, 2020)

PROFESSIONAL ORGANIZATIONS

2019 – *present*	International Society of Magnetic Resonance in Medicine
2017 – *present*	Cognitive Development Society
2015 – *present*	Vision Sciences Society
2014 – *present*	Cognitive Neuroscience Society
2014 – 2015	Society for Research in Child Development
2005 – 2009	Society of Women Engineers