

# Aditya Upadhyayula

Department of Psychological & Brain Sciences  
Washington University in St. Louis, USA

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## EDUCATION

- 2021 Johns Hopkins University, USA, PhD, Psychological & Brain Sciences
- 2018 Johns Hopkins University, USA, M.A., Psychological & Brain Sciences
- 2016 North Carolina State University, USA, M.S., Electrical & Computer Engineering
- 2013 Birla Institute of Technology & Science - Hyderabad, India, M.Sc.(Hons.), Physics
- 2013 Birla Institute of Technology & Science - Hyderabad, India, B.E.(Hons.), Electronics & Communications Engineering

## ACADEMIC APPOINTMENTS

- present Post Doctoral Scholar, DEPARTMENT OF PSYCHOLOGICAL & BRAIN SCIENCES, WASHINGTON UNIVERSITY, St. Louis, MO
- July 2023 Investigating how we represent, process and remember naturalistic videos using eye tracking, fMRI, computational modelling and behavioral analyses  
Mentor(s) : [Jeffrey M. Zacks, PhD](#) & [Zachariah M. Reagh, PhD](#)
- July 2023 Post Doctoral Scholar, CENTER FOR MIND & BRAIN, UNIVERSITY OF CALIFORNIA, Davis, CA
- July 2021 Investigating how scene semantics informs eye movements in naturalistic images and videos using eye tracking, computational modelling and behavioral analyses  
Mentor : [John Henderson, PhD](#)

## HONORS AND AWARDS

- 2021 G. Stanley Hall Scholar Award - Awarded to a student who has demonstrated exceptional scholarly progress in dissertation research (\$500)
- 2019 Travel Award, Object Perception Attention and Memory conference (\$250)
- 2019 Departmental Collaborative Research Grant Award (\$1000)
- 2016 Robert S. Waldrop Graduate Student Fellowship
- 2021

## SKILLS

- Programming Python, MATLAB, R, C, Javascript, HTML, Java
- Methodology Computational Cognitive Science, functional Magnetic Resonance Imaging (fMRI), Eye Tracking, Psychophysics, EEG processing
- OS MacOS, Linux, Windows
- Software PyTorch, Psychopy, Psychtoolbox, Nilearn, Plotly, Tensorflow, Experiment Builder, EEGLAB, E, NLTK, spaCy

## TEACHING

- Spring 2020 Instructor - Cognitive Neuroscience, Johns Hopkins University
- Fall 2019 Instructor - Research Methods, Johns Hopkins University
- Spring 2019 Instructor - Design & Experimental Analysis, Johns Hopkins University
- Fall 2018 Teaching Assistant - Sensation & Perception, Johns Hopkins University
- Spring 2018 Teaching Assistant - Introduction to Cognitive Psychology, Johns Hopkins University
- Fall 2017 Teaching Assistant - Introduction to Psychology, Johns Hopkins University

## RESEARCH EXPERIENCE

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Present	<b>Visiting Researcher, TILBURG UNIVERSITY, Netherlands</b>
August 2019	Developing computational methods using psycholinguistic theories to understand narrative comprehension in comics <div>Collaborator : <a href="#">Neil Cohn, PhD</a></div>
May 2021	<b>Graduate Researcher, JOHNS HOPKINS UNIVERSITY, Baltimore, MD</b>
August 2016	Developed computational methods, used psychophysics tools & eye tracking to understand performance limits in visual cognition & perception <div>Advisor : <a href="#">Jonathan Flombaum, PhD</a></div>
May 2016	<b>Graduate Researcher, NORTH CAROLINA UNIVERSITY, Raleigh, NC</b>
January 2015	Developed computational methods using signal & image processing to remove respiratory artifacts in MRI scans <div>Mentor : <a href="#">David Lalush, PhD</a></div>
May 2016	<b>Graduate Research Assistant, UNIVERSITY OF NORTH CAROLINA, Chapel Hill, NC</b>
January 2016	Built an EEG processing pipeline & analyzed for frontal asymmetries in the resting state EEG data of patients with Major Depressive Disorder <div>Mentor : <a href="#">Flavio Frohlich, PhD</a></div>
December 2014	<b>Research Assistant, INDIAN INSTITUTE OF SCIENCE, Bengaluru, India</b>
August 2014	Programmed & Assisted in building a robotic arm to study motor control of eye-hand coordination in humans <div>Mentor : <a href="#">Aditya Murthy, PhD</a></div>
July 2014	<b>Research Assistant, INDIAN INSTITUTE OF SCIENCE, Bengaluru, India</b>
January 2013	Developed prototypes & wrote algorithms for an autonomous Indoor Positioning System that can be used for navigating first responders during disaster management <div>Mentor : <a href="#">K.V.S. Hari, PhD</a></div>

## PUBLICATIONS (INCLUDING MANUSCRIPTS IN PREP & UNDER REVIEW)

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- 2024 **Upadhyayula A.**, John M. Henderson, Jeffrey M. Zacks & Zachariah M. Reagh. (*In prep*). Intersubject neural similarity and pattern reinstatement during recall are enhanced at meaningful moments during film viewing.
- 2024 **Upadhyayula A.**, Alan Lu & John M Henderson. (*In prep*) Meaning maps predict reaction time in change blindness paradigm
- 2024 **Upadhyayula A.**, & John M Henderson. (*In prep*). Event structure affects impaired detection of spatiotemporal disruptions during film viewing
- 2024 **Upadhyayula A.**, Ian B. Phillips & Flombaum. J.I. (*In prep*). Subjective expansion of Time happens in our immediate memory, but not perceptual experience [\[See the poster\]](#)
- 2024 **Upadhyayula A.**, & Neil Cohn. (*Under Revision*). A hierarchical grammar explains segmentation in visual narratives. [\[Watch the talk\]](#)
- 2023 **Upadhyayula A.**, & John M Henderson. (*In press*) Spatiotemporal jump detections during continuous film viewing : Insights from a flicker paradigm.
- 2023 **Upadhyayula A.**, & John M Henderson. (*JOV*) Spatiotemporal jump detections during continuous film viewing
- 2023 **Upadhyayula A.**, Ian B. Phillips & Flombaum. J.I. (*JEP:General*). Eccentricity advances arrival into visual perception [\[Watch the talk\]](#)
- 2020 **Upadhyayula A.**, & Flombaum. J.I. (2020). "A model that adopts human fixations explains individual differences in multiple object tracking." *Cognition* (2020) : 104418.g [\[link\]](#)

## CONFERENCES

- 2023 Alan Lu, **Upadhyayula A.** ,& John M. Henderson. Meaning maps predict reaction time in change blindness paradigm, presented at Object Perception & Memory (OPAM) 2023.
- 2022 **Upadhyayula A.** ,& John M. Henderson. Time marches on : Impaired detection of spatiotemporal discontinuities during film viewing, poster presented at VSS 2022.
- 2020 **Upadhyayula A.** ,& Neil Cohn. Hierarchical Structure in Processing Visual Narratives : A computational investigation, talk presented part of symposium at CogSci. 2020
- 2020 **Upadhyayula A.** , Ian Phillips & Flombaum. J.I. Space and Time Dissociate in the construction of the Visual Now, talk presented at V-VSS 2020
- 2020 Ian Phillips, **Upadhyayula A.** & Flombaum. J.I. Tachypsychia - subjective expansion of time - happens in immediate memory, and not in perceptual experience, poster presented at V-VSS 2020
- 2019 **Upadhyayula A.** , & Jonathan Flombaum, "Distortions of time perception", presented at Mid Atlantic Memory and Attention conference
- 2019 **Upadhyayula A.** ,& Jonathan Flombaum, Two distortions of perceived space and time, presented at Object Perception Attention & Memory (OPAM)
- 2019 **Upadhyayula A.** , & Jonathan Flombaum, The Visual Now across the visual field, presented at Capital Area Cognition Action & Perception
- 2018 **Upadhyayula A.** , & Jonathan Flombaum, "Object size affects multiple object tracking performance (but not via frequency of close encounters)." Journal of Vision 18.10 (2018) : 1020-1020

## SELECTED TALKS

- 2023 Encounters with semantic violations do not interfere with immediately subsequent scene-viewing behavior, presented at Psychonomics 2023, on behalf of Alan Lu due to unforeseen circumstances
- 2023 Event & Memory cognition group at Washington University in St. Louis - (PIs : Jeffrey M. Zacks, Zachariah M. Reagh)
- 2023 Isik Lab, Johns Hopkins - (PI : Leyla Isik)
- 2023 Abstract Representations in Neural Architectures (ARENA) group, Germany - (PIs : Melissa Vo, Maria Toneva, Christian Feibach, Gemma Roig, Matthias Kaschube)
- 2021 Yale University, CT - Cognitive & Neural Computation Lab (PI : Ilker Yildirim)
- 2021 University of California, Davis, CA - Visual Cognition Group (PI : John Henderson)
- 2021 New York University - Ma Lab (PI : Wei Ji Ma)
- 2020 Tilburg University, Netherlands - Groningen-Tilburg joint workshop on Pictorial narrative comprehension
- 2020 University of California, San Diego, CA - Cognitive tools lab (PI : Judith Fan)
- 2019 Villanova University, PA - Mid Atlantic meeting on Memory & Action
- 2018 Georgetown University, DC - Capital Area conference on Cognition, Action & Perception
- 2018 Johns Hopkins University - Seminar on Computational Psycholinguistics (PI : Tal Linzen)

## PROFESSIONAL ACTIVITIES

<b>Membership</b>	Vision Sciences Society, Cognitive Neuroscience Society, Cognitive Sciences Society, Psychonomics, OPAM
<b>Ad Hoc</b>	Cognitive Science; Psychological Review; Attention, Perception & Psychophysics; Visual Cognition; Memory & Cognition; Journal of Experimental Psychology : Learning, Memory & Cognition; Timing & Time perception; Memory & Cognition
<b>Reviewing</b>	

## REFERENCES

<b>Jonathan Flombaum</b> <i>Professor</i> JOHNS HOPKINS UNIVERSITY <a href="mailto:flombaum@jhu.edu">flombaum@jhu.edu</a>	<b>John Henderson</b> <i>Professor</i> UC DAVIS <a href="mailto:johnhenderson@ucdavis.edu">johnhenderson@ucdavis.edu</a>	<b>Jeffrey M. Zacks</b> <i>Professor</i> WASHU ST. LOUIS <a href="mailto:jzacks@wustl.edu">jzacks@wustl.edu</a>	<b>Zachariah M. Reagh</b> <i>Assistant Professor</i> WASHU ST. LOUIS <a href="mailto:zreagh@wustl.edu">zreagh@wustl.edu</a>
<b>Neil Cohn</b> <i>Associate Professor</i> TILBURG UNIVERSITY <a href="mailto:neilcohn@emaki.net">neilcohn@emaki.net</a>	<b>Ian Phillips</b> <i>Professor</i> JOHNS HOPKINS UNIVERSITY <a href="mailto:ianbphillips@jhu.edu">ianbphillips@jhu.edu</a>		