# Aditya Upadhyayula

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## Skills

**Programming** - Python, MATLAB, R, C, Javascript, HTML, Java, C++

**Operating Systems** - MacOs, Linux, Windows

**Software** - Pytorch, Psychopy, Psychtoolbox, JsPsych, Plotly, Tensorflow, Eyelink systems, EEGLAB

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## Experience

### Johns Hopkins University / Graduate student
AUGUST 2016 - PRESENT,  BALTIMORE, MD, USA

- Using AI / ML algorithms in Computer Vision and NLP, psychophysics & behavior to understand human visual cognition.

- 16 invited and contributed talks given at Colloquia, Domestic & International conferences

### UNC SYSTEMS / Graduate Research Assistant
AUGUST 2015 - MAY 2016, RALEIGH & CHAPEL HILL, NC, USA

- Developed algorithms to remove respiratory artefacts in self gated MRI scans | NORTH CAROLINA STATE UNIVERSITY.

- Developed a pipeline to identify biomarkers (EEG) for Major Depressive Disorder Patients | UNC CHAPEL HILL

### INDIAN INSTITUTE OF SCIENCE / Research Assistant
JAN 2013 - DECEMBER 2014,  BENGALURU, INDIA

- Developed an indoor navigation system for first responders using IMUs and gait modelling. | Electrical & Communications Engineering Dept.

- Programmed a robotic arm to study visuo-motor adaptations in external force fields. | Center for Neuroscience

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## Education

PhD Cognitive Psychology / **Johns Hopkins University**

AUGUST 2016 - MAY 2021 (*expected)*,  Baltimore, MD, USA

M.A. Cognitive Psychology / **Johns Hopkins University**

AUGUST 2016 - MAY 2018,  Baltimore, MD, USA

M.S. Electrical & Computer Engineering/ **North Carolina State University**

JANUARY 2015 - MAY 2016,  Raleigh, NC, USA

M.Sc. (Hons).  Physics **|** B.E. (Hons). Electronics & Communications Engineering / **Birla Institute of Technology & Science, Pilani**

AUGUST 2008 - MAY 2013,  HYDERABAD, INDIA

## Publications

Upadhyayula. A.., & Flombaum. J.I. (2020). "A model that adopts human fixations explains individual differences in multiple object tracking." Cognition (2020) : 104418.g [link]

Upadhyayula. A.., Ian B. Phillips & Flombaum. J.I. (*In prep*). Space and Time Dissociate in the construction of a Visual Moment

Upadhyayula. A.., Ian B. Phillips & Flombaum. J.I. (*In prep*). Subjective Expansion of Time happens in our immediate memory, but not perceptual experience

## Awards

Travel Award, Object Perception Attention and Memory conference (2019)

Departmental Collaborative Research Grant Award | Topic : Individual differences in temporal integration of music (2018)

Robert S. Waldrop Graduate Student Fellowship (2016 - present)

## Projects

### Hierarchical Structure in Processing Visual Narratives

- Designed, developed and implemented computational framework to study comics using existing NLP tools — since August 2019

### Distortions of Temporal Processing in The Mind (Dissertation work)

- Investigating how we represent and process time using psychophysics and behavior— since August 2018

### Understanding the Limitations of Human Cognition

- Developed and implemented Kalman / Particle filters, LSTM based models along with eye tracking data to understand limitations of human cognition - August 2016 - August 2019

### Fake Image Detection & Art generation using GANs

- Implemented conditional GANs to generate art from text descriptions

- Implemented and evaluated the performance of autoGAN and DCGAN to reconstruct images and subsequently train them to distinguish between real and fake images — March - May 2020

### Do Neural language models parse according to a syntax structure?

- Implemented and demonstrated that the neural language model (Guldorova et.al. 2018) is able to parse syntax during language comprehension— October - December 2019.