

# Ashima Keshava

## Research Associate



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### Highlights

- 5 years of experience as a data scientist and neuroscience researcher.
- 10+ years of programming experience with Python, Matlab & R
- Proficient in eye-tracking, EEG, body kinematics, 3D geometry, advanced EEG & eye-tracking signal processing.
- Experience in designing, conducting VR experiments, data analysis, and visualization
- Experience in advanced statistical modeling, Generalized Linear Mixed Models, Generalized Eigen Decomposition, Classification & Clustering Algorithms

### Research

#### Neurobiopsychology Lab / Doctoral Candidate

May 2017-PRESENT, INSTITUTE OF COGNITIVE SCIENCE

May 2019-PRESENT, COMPUTATIONAL COGNITION RESEARCH TRAINING GROUP

**Topics:** Intention Recognition, Active Vision, Human-Machine Interaction, Hyperscanning, Embodied Cognition, Real-World Neuroscience

**Methods:** Eye-Tracking in VR, body kinematics, EEG, Statistical modeling, Machine Learning

**Dissertation:** Action-oriented vision. Computational models of vision-for-action in naturalistic settings.

#### Neurobiopsychology Lab / Research Assistant

2014-2016, INSTITUTE OF COGNITIVE SCIENCE

**Topics:** Social neuroscience, dyadic interactions, visual object tracking, spatial biases in viewing behavior

**Methods:** Eye-Tracking, EEG, statistical analysis

#### Infosys Ltd. Department of Education & Research / Systems Engineer

SEPTEMBER 2011 - SEPTEMBER 2013, MYSORE, INDIA

**Topics:** Anomaly detection, classification and clustering of user-generated behavior on cloud platforms

#### Defense Research & Development Organisation / Trainee

JANUARY 2011 - JUNE 2011, NEW DELHI, INDIA

**Topics:** Neural-network based cryptographic text classification

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## Teaching

### Real-world Neuroscience and Beyond

WINTER SEMESTER 2021-22

**Topics:** Computational ethology, ecological validity, real-world neuro-imaging

### Deep Learning & Cognitive Neuroscience

WINTER SEMESTER 2020-21

**Topics:** Encoding-Decoding models of human visual cortex

### Computational Cognition

SUMMER SEMESTER 2021/ 2020/ 2019

**Topics:** Data Science for human neuroimaging and behavioral data

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## Selected Publications

Keshava, A., Özenoglu, Ö., Vidal De Palol, M., Nolte, D., & König, P. (2022). Decoding Neural Sources of Anticipatory Gaze Behavior. (*In preparation*)

Keshava, A., Wächter M. A., Boße, F., Schüler, T., & König, P. (2022). Eye and Hand Coordination Control is Dependent on Spatial Location of Action. (*In preparation*)

Keshava, A., Nezami, F. N., Neumann, H., Izdebski, K., Schüler, T., & König, P. (2022). Low-level Action Schemas Support Gaze Guidance Behavior for Action Planning and Execution in Novel Tasks. (*In review*) Preprint at bioRxiv

Keshava, A., Gottschewsky, N., Balle, S., Nezami, F. N., Schüler, T., & König, P. (2021). Action Affordance Affects Proximal And Distal Goal-Oriented Planning. (*In review*) Preprint at bioRxiv

Czeszumski, A.\* Gert, A. L.\* **Keshava, A.\***, Ghadirzadeh, A., Kalthoff, T., Ehinger, B. V., Tiessen, M., Björkman, M., Krägic, D., & König, P. (2021). Coordinating With a Robot Partner Affects Neural Processing Related to Action Monitoring. *Frontiers in Neurorobotics*, 15, 102. (\* equal contribution)

Keshava, A., Aumeistere, A., Izdebski, K., & Konig, P. (2020). Decoding Task From Oculomotor Behavior In Virtual Reality. *ACM Symposium on Eye Tracking Research and Applications*.

König, S. U., **Keshava, A.**, Clay, V., Ritterhofer, K., & Kuske, N., König, P. (2020). Embodied Spatial Knowledge Acquisition in Immersive Virtual Reality: Comparison to Map Exploration. *Frontiers in Virtual Reality*, 4.

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## Education

### Institute of Cognitive Science / Doctoral Candidate

MAY 2017 - PRESENT, OSNABRÜCK, GERMANY

### Institute of Cognitive Science / MSc Cognitive Science

OCTOBER 2013 - DECEMBER 2016, OSNABRÜCK, GERMANY

Study emphasis on Cognitive Neuroscience and Cognitive Psychology

### Manipal Institute of Technology / BE Electronics & Communication

AUGUST 2007 - JULY 2011, MANIPAL, INDIA

Study emphasis on Engineering Mathematics, Signal Processing

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## **Grants/Funding**

SmartFi: Smart Fidelity interaction system to increase the realism of performing manual tasks in virtual reality. funded by the European Funds for Regional Development, Lower Saxony, Germany  
OCTOBER 2021 - PRESENT

ErgoVR: Development of an ergonomics analysis tool in virtual reality for the planning of workplaces in industrial manufacturing, funded by the German Federal Ministry of Education and Research  
SEPTEMBER 2018 - AUGUST 2020

VRFlow Suite: Embodied Engineering in der Produktionstechnik, funded by European Funds for Regional Development, Lower Saxony, Germany  
MAY 2017 - JULY 2018

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## **Event**

### **Organization**

Organized - Eye-Tracking in VR with Active Users  
SEPTEMBER 2021 - NEUROERGONOMICS CONFERENCE

Co-organized - Deep Reinforcement Learning Workshop for PhDs  
JANUARY 2021

Co-organized - Institute of Cognitive Science Weekly Colloquium  
APRIL 2020 - MARCH 2021

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## **Extras**

**Equal Opportunity Representative**, Computational Cognition Research Training Group  
APRIL 2019 - PRESENT

**Lab Admin**, NeuroBioPsychology Lab  
JANUARY 2018 - APRIL 2022