

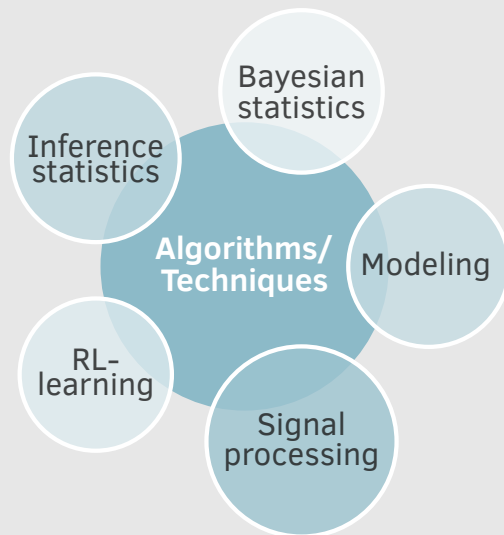


# Saurabh Steixner-Kumar

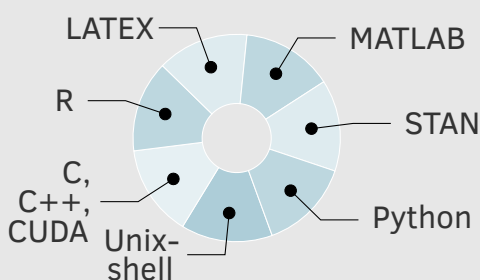
Researcher,  
Computational Neuroscience

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## Skills



## Coding/Scripting —



## Working Experience

Mar 2017 –  
Present

### University Medical Center Hamburg-Eppendorf

Hamburg, HH

Systems neuroscience, Modelling, Social decision making, Hyper-scanning. Based on the theory of mind and the social decision making framework, my current research project looks at the mental models that we form of others and the decisions that we make. To carry out this undertaking, Bayesian-inference modeling along with reinforcement-learning where decisions are formulated under uncertainty, is scrutinized. To identify the neuronal signatures and the linked interactions in the brain, we employ the EEG hyper-scanning technique.

Apr 2014 –  
Feb 2017

### Max Planck Institute for Human Cognitive and Brain Sciences

Leipzig, Saxony

A project to develop a therapeutic treatment for obesity. The project compared lean and obese volunteers in their mental makeup towards high and low caloric food. EEG was recorded and various statistical routines and signal processing techniques were performed to highlight the relevant findings. The results are published and can be found on the publications section.

Oct 2013 –  
Apr 2014

### University Medical Center Schleswig-Holstein

Kiel, Schleswig-Holstein

The project involved forming a simplistic simulation of a human brain. The challenge was to simulate the brain potentials on the surface of the scalp with differently located and oriented dipoles. These scalp potentials were then used to find an inverse solution to identify the brain sources. A new algorithm based on the phase differences of the scalp potentials was developed and tested for its accuracy and speed.

Feb 2013 –  
Aug 2013

### EADS Eurocopters (Airbus Helicopter)

Donauwoerth, Bavaria & Munich, Bavaria

Health Usage Monitoring Systems (HUMS): During a helicopter flight, vibrations in the gearbox is a dangerous sign that can lead to fatal accidents. Therefore, it is imperative to stop such a scenario taking place. Using signal processing algorithms one can predict the life expectancy of the shafts and other parts in the gearbox. The project simulated a virtual gearbox to understand these vibrations and identify the causes in time and frequency domains.

Oct 2011 –  
May 2012

### EADS Astrium Space

### Transportation (Airbus Space and Defence)

Friedrichshafen, Baden-Württemberg

Project RUBY: Bubble formation is different in micro-gravity, demystifying it takes capturing multiply images of every moment in its creation. The project used various image processing tools and techniques to sort them and report the missing links.

Project FOAM: The need to study the formation of foam in micro gravity of space is essential in order to enhance the food structures. Therefore this project, part of the collaboration with ESA (European space agency) and the ISS (International space station) Columbus module had to design a lab box for experimentation. The prototype involved testing hardware and software on a parabolic flight. The challenge was to create a software to operate in the extreme conditions. Different correlators, multiple cameras monitoring the experiment box and various motor components were controlled simultaneously.

The success story can be found at this link :

[http://www.esa.int/Our\\_Activities/Human\\_Spaceflight/Space\\_for\\_dessert](http://www.esa.int/Our_Activities/Human_Spaceflight/Space_for_dessert)

# Saurabh Steixner-Kumar

Researcher,  
Computational Neuroscience

## About Me

Excited by the technological possibilities in the contemporary world, while driven by scrutinizing its stimulating scientific significance.

## Social Networks



SteixnerKumar



in/SteixnerKumar/



SteixnerKumar



0000-0002-0603-2922

## Hands-on

fieldtrip

eeglab

psychtoolbox

EEG/MEG

tDCS/tACS

LABVIEW

neuropsychological / behavioral exp.

## Languages



English



German



Hindi



Gujarati



## Hobbies



## Webspace



SCAN ME

## Education

- 2014 – 2017 **Doctorate/PhD** Max Planck Institute & Leipzig University  
Focus: Neuroscience, signal processing, statistics
- 2010 – 2014 **MSc Digital communications** Christian Albrechts University (Kiel University)  
Focus: Digital communications, encryption, signal processing.
- 2006 – 2010 **BTech Electronics and Communications** Ganpat University  
Focus: Electronics, coding, digital signal processing

## Publications

- 2020 **Strategies for navigating a dynamic world**  
*Saurabh Steixner-Kumar, Jan Gläscher*  
Science
- 2020 **Theory of mind and decision science: Towards a typology of tasks and computational models**  
*Tessa Rusch, Saurabh Steixner-Kumar, Prashant Doshi, Michael Spezio, Jan Gläscher*  
Neuropsychologia
- 2019 **Modeling cooperative and competitive decision-making in the Tiger Task & Modeling Cooperation and Competition in the Tiger Task**  
*Saurabh Kumar, Tessa Rusch, Prashant Doshi, Michael Spezio, Jan Gläscher*  
4th Multi-disciplinary Conference on Reinforcement Learning and Decision Making (RLDM 2019) & 2019 Conference on Cognitive Computational Neuroscience
- 2018 **Satiety-induced enhanced neuronal activity in the frontal operculum relates to the desire for food in the obese female brain**  
*Saurabh Kumar, Felicitas Grundeis, Cristin Brand, Han-Jeong Hwang, Jan Mehnert, Burkhard Pleger*  
Experimental Brain Research
- 2017 **Establishing and validating a new source analysis method using phase**  
*V. Chirumamilla, G. Gonzalez-Escamilla, S. Kumar, X. Longfei, S. Groppa, M. Muthuraman*  
39th Annual International Conference of the IEEE Engineering in Medicine and Biology Society (EMBC)
- 2017 **Non-invasive Prefrontal/Frontal Brain Stimulation Is Not Effective in Modulating Food Reappraisal Abilities or Calorie Consumption in Obese Females**  
*Felicitas Grundeis, Cristin Brand, Saurabh Kumar, Michael Rullmann, Jan Mehnert, Burkhard Pleger*  
Frontiers in Neuroscience
- 2017 **EEG study on the differences between lean and obese individuals during regulation of food desire**  
*Saurabh Kumar*  
Universität Leipzig, Leipzig
- 2016 **Differences in Insula and Pre-/Frontal Responses during Reappraisal of Food in Lean and Obese Humans**  
*Saurabh Kumar, Felicitas Grundeis, Cristin Brand, Han-Jeong Hwang, Jan Mehnert, Burkhard Pleger*  
Frontiers in Human Neuroscience
- 2016 **Differences in Insula and Pre-/Frontal Responses during Reappraisal of Food in Lean and Obese Humans**  
*Saurabh Kumar, Felicitas Grundeis, Cristin Brand, Han-Jeong Hwang, Jan Mehnert, Burkhard Pleger*  
SAN2016 Meeting, Corfu, Greece, 6 Oct - 9 Oct, 2016
- 2015 **Introduction to scientific research approaches: Brain Computer Interfaces-The Hexa Speller**  
*Norman Forschack, Saurabh Kumar, Jan Mehnert*  
MPI Leipzig, Girls Day

August 28, 2020

Saurabh Steixner-Kumar