Saurabh Steixner-Kumar

Researcher,
Computational Neuroscience

19th Oct, 1988

Martinistraße W34, 20246-HH

+49 (0) 40 7410 - 53170

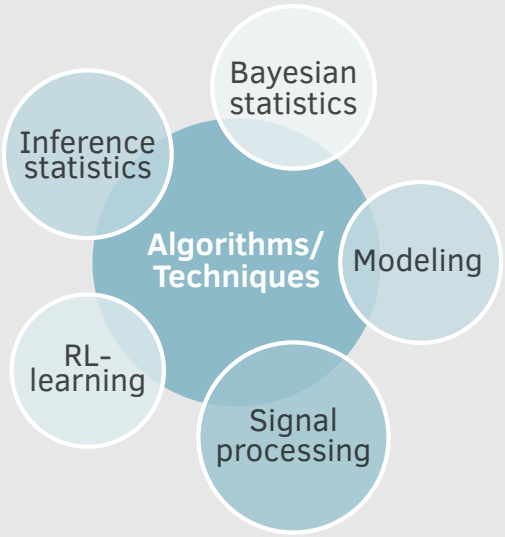
https://steixnerkumar.github.io/

s.steixner-kumar@uke.de

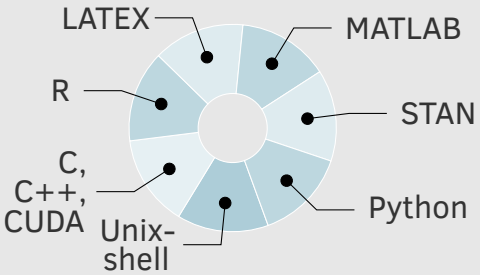
xxxxx/xxxxxxxx

German

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

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 **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**
***Saurabh Kumar**, Tessa Rusch, Prashant Doshi, Michael Spezio, Jan Gläscher*
4th Multi-disciplinary Conference on Reinforcement Learning and Decision Making (RLDM 2019)

2019 **Modeling Cooperation and Competition in the Tiger Task**
***Saurabh Kumar**, Tessa Rusch, Prashant Doshi, Michael Spezio, Jan Gläscher (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