Satyam Kumar

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EDUCATION

IIT KANPUR

MTech in Electrical Engineering
Expected Jun 2018 | Kanpur, India
Cum. GPA: 8.7/10.0

BTech in Electrical Engineering
Expected Jun 2018 | Kanpur, India
Cum. GPA: 7.0 / 10.0
Major GPA: 7.7 / 10.0

MODERN SCHOOL KOTA

Grad. May 2012| Kota, India

COURSEWORK

COMPUTER SCIENCE

Bayesian Machine Learning
Neural Networks
Fundamentals of Computing

COGNITIVE SCIENCE

Neurobiology
Human cognitive processes

MATHEMATICS

Probability & Statistics
Partial Differential Equations
Computational Methods in Engineering
Linear algebra
Analytical calculus

DEPARTMENTAL

Digital Signal Processing
Signal Systems & Networks
Control systems + laboratory
Digital control

SKILLS

Programming
Matlab • Python • C • LaTeX
Familiar:
Microcap • Pspice •Arduino • AutoDesk Inventor • Autocad • Tensorflow • Android studio

SCORES

GRE
Quant-170/170 | Verbal-152/170
TOEFL
Speaking: 23/30 | Writing: 26/30
Listening: 29/30 | Reading: 27/30
JEE Mains
292/360 (top 99.993 percentile)

PUBLICATION

Kumar, S., Reddy, T., Behera, L., **EEG based Motor imagery classification using instantaneous phase difference sequence** , Manuscript accepted for publication in IEEE conference on Systems, Man and Cybernetics, 2018

THESIS

ENHANCING THE PERFORMANCE OF MOTOR IMAGERY BRAIN COMPUTER INTERFACE | ETH Zurich & IIT Kanpur

Aug 2017 – Feb 2018 | Prof. Roger Gassert & Prof. Laxmidhar Behera

- Implemented and compared common spatial pattern (CSP) algorithm with its state of the art variants on BCI competition datasets
- Analyzed differnt phase synchrony statistics during motor imagery
- Formulated a novel approach based on instantaneous phase difference sequences for motor imagery classification

SUBSPACE ANALYSIS IN MOTOR IMAGERY BRAIN COMPUTER INTERFACE | IIT Kanpur

Mar 2018 – Ongoing | Prof. Laxmidhar Behera

- Implemented stationary subspace analysis and divergence based framework of common spatial pattern algorithm for binary class
- Working on formulation of novel divergence based approach for classification in multi-class motor imagery brain computer interface

INTERNSHIP

TELECOM BRETAGNE, FRANCE

May 2016 – Jul 2016 | Prof. Francesco P. Andriulli

- Studied different forward and inverse methods deployed for EEG source localisation in human brain model
- Proposed and implemented the Genetic algorithm to simultaneously optimise channel selection and classification performance of Motor imagery BCI.

RESEARCH PROJECTS

IMAGINED SPEECH CLASSIFICATION USING EEG SIGNALS

Aug 2016 – Dec 2016 | Prof. Laxmidhar Behera

- Designed the experimental paradigm and performed signal acquisition using a clinical EEG setup by g.tec for signal recording of imagined speech
- Extracted features using two different approaches: Matricization followed by dimensionality reduction and Tensor decomposition
- Standard classifiers like LDA, SVM, kernel SVM used for classification

EYE BLINK CLASSIFICATION USING EOG SIGNAL

Jan 2016 – May 2016 | Prof. Laxmidhar Behera

Designed the experimental paradigm for EOG signal acquisition to classify different type of eye blinks.Spectral and temporal features were extracted for classification using Softmax and SVM classifier

ACHIEVEMENTS

2017 Teaching assistant fellowship, Ministry of Human Resource Development India
2016 Received Charpak Research Scholarship, Awarded by French embassy
2014 Overall Best Project award, Course project for Manufacturing Processes
2013 Youngest ever across India (13 years) to clear JEE Advanced
2013 Secured all India rank 679 (top 99.993 percentile) in JEE Advanced