

Dr. Gourav SIDDHAD

PDF (HAIx Lab, IIT Gandhinagar) | Ph.D. (IIT Roorkee)



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Research Interest : Brain-Computer Interface (BCI) Electroencephalography (EEG) Cancelable Biometrics Deep Learning Image Processing

EDUCATIONAL QUALIFICATIONS

April 2025	Ph.D., INDIAN INSTITUTE OF TECHNOLOGY, Roorkee
August 2020	<ul style="list-style-type: none">> Computer Science 8.57/10> Thesis - Towards Human Behavior Prediction using EEG: Analyzing Cognitive Workload and Emotional Responses> 15 Days visit to Japan under Sakura Science Program 2022, sponsored by the Japan Science and Technology Agency (JST), BCI Deep Learning EEG Image Processing Python
August 2020	M.Tech., PDPM INDIAN INSTITUTE OF INFORMATION TECHNOLOGY, DESIGN AND MANUFACTURING, Jabalpur
July 2018	<ul style="list-style-type: none">> Computer Science 8.3/10> Thesis - Cancelable Biometric Templates for Low-End Devices> IIITDMJ Proficiency Prize (Silver Medal for the Best Thesis among PG Students of CSE) Cancelable Biometrics Deep Learning Image Processing Python
May 2017	B.Tech., HANSRAJ COLLEGE, University of Delhi, Delhi
July 2013	<ul style="list-style-type: none">> Computer Science 69.02 % C++ Java Android
April 2013	AISSCE, CBSE, EMERALD HEIGHTS INTERNATIONAL SCHOOL, Indore
July 2012	<ul style="list-style-type: none">> PCM + CS 91.4 %> Certificate of Excellence (Best in Computer Science) C C++
April 2011	AISSE, CBSE, EMERALD HEIGHTS INTERNATIONAL SCHOOL, Indore
July 2010	<ul style="list-style-type: none">> 8.8/10 CGPA

EXPERIENCE

Present	PostDoctoral Fellow, HAIx Lab, IIT, Gandhinagar
January 2026	PDF under Dr. Yogesh Kumar Meena (Assistant Professor, CSE, IIT Gandhinagar), Brain-Computer Interface
December 2025	Assistant Professor, SCSIT, SYMBIOSIS UNIVERSITY OF APPLIED SCIENCES, Indore
May 2025	Python Machine Learning
December 2025	Assistant to Associate Editor, IIT, Roorkee
December 2023	Assistant to Associate Editor of IEEE Transactions on Circuits and Systems for Video Technology (TCSVT), Machine Learning Deep Learning Review
September 2024	Teaching Assistant, IIT, Roorkee
August 2020	Faculty TA SQL AI Data Science Data Structure Algorithms Compiler
April 2024	Teaching Assistant, IIT, Roorkee
April 2024	Certificate Course on Big Data Analytics for ITS Officers Machine Learning Deep Learning
March 2022	Teaching Assistant, TIMES TSW AND IIT, Roorkee
December 2021	Certificate Program in Machine Learning (CPML) Machine Learning
July 2020	Teaching Assistant, PDPM IIITDM, Jabalpur
July 2018	Algorithms C Data Structures DBMS HTML Java SQL
March 2018	Trainer, INFOZONE INFORMATICS, Indore
January 2018	Taught Students - Programming fundamentals, OOP concepts, and Microsoft Office C C++ Java MS-Office

DISSERTATIONS

TOWARDS HUMAN BEHAVIOR PREDICTION USING EEG: ANALYZING COGNITIVE WORKLOAD AND EMOTIONAL RESPONSES

AUGUST 2020 - APRIL 2025

IIT Roorkee

The dissertation carried out is based on Human Behavior Prediction on EEG data using machine and deep learning based methods. The work also includes rigorous analysis of the methods formulated and implementation of state-of-the-art work done in the field. This work was done under the guidance of Dr. Partha Pratim Roy (Associate Professor, IIT Roorkee).

[BCI](#) [EEG](#) [Deep Learning](#)

CANCELABLE BIOMETRIC TEMPLATES FOR LOW-END DEVICES

DECEMBER 2018 - AUGUST 2020

PDPM IIITDM Jabalpur

The dissertation carried out is summarized as cancelable biometric template generation for unimodal and multimodal biometric authentication using traditional as well as deep learning based methods for low-end devices. The work also includes rigorous analysis of the cancelable biometric schemes formulated and implementation of state-of-the-art work done in the field. This work was done under the guidance of Dr. Pritee Khanna (Professor, PDPM IIITDM Jabalpur).

[Cancelable Biometrics](#) [Cryptography](#) [Image Processing](#) [Deep Learning](#)

PUBLICATIONS

Journal Submitted	Gourav Siddhad, Anurag Singh, Rajkumar Saini, and Partha Pratim Roy. Modified TSception for Analyzing Driver Drowsiness and Mental Workload from EEG . Under Review at Springer Neural Computing and Applications	10.48550/arXiv.2512.21747
Journal Submitted	Gourav Siddhad, Juhi Singh, and Partha Pratim Roy. MECASA: Motor Execution Classification using Additive Self-Attention for Hybrid EEG-fNIRS Data . Under Review at Springer Neural Computing and Applications	10.48550/arXiv.2501.05525
Journal [Q1-IF:6.7]	Gourav Siddhad, Masakazu Iwamura, and Partha Pratim Roy. Enhancing EEG Signal-based Emotion Recognition with Synthetic Data: Diffusion Model Approach . IEEE Transactions on Artificial Intelligence	10.1109/TAI.2025.3641576
Conference [Core B]	Gourav Siddhad, Sayantan Dey, and Partha Pratim Roy. DrowzEE-G-Mamba: Leveraging EEG and State Space Models for Driver Drowsiness Detection , 27th International Conference on Pattern Recognition (ICPR), 2024.	10.1007/978-3-031-78398-2_19
Conference [Core B]	Gourav Siddhad, Sayantan Dey, Partha Pratim Roy, and Masakazu Iwamura. Awake at the Wheel: Enhancing Automotive Safety through EEG-Based Fatigue Detection , 27th International Conference on Pattern Recognition (ICPR), 2024.	10.1007/978-3-031-78195-7_23
Conference [Core B]	Gourav Siddhad, Partha Pratim Roy, and Byung-Gyu Kim. Neural Network Meet Neural Activity: Utilizing EEG for Mental Workload Estimation , 27th International Conference on Pattern Recognition (ICPR), 2024.	10.1007/978-3-031-78195-7_22
Journal [Q1-IF:4.9]	Gourav Siddhad, Anmol Gupta, Debi Prosad Dogra, and Partha Pratim Roy. Efficacy of Transformer Networks for Classification of Raw EEG Data , Biomedical Signal Processing and Control, 87, Part B, 105488, 2024.	10.1016/j.bspc.2023.105488
Conference	Pankaj Bamoriya, Gourav Siddhad, Pritee Khanna, and Aparajita Ojha. Cancelable Template Generation Using Convolutional Autoencoder and RandNet , International Conference on Computer Vision and Image Processing (CVIP), Springer, 363–374, 2022.	10.1007/978-3-031-11346-8_32
Journal [Q2-IF:3.4]	Pankaj Bamoriya, Gourav Siddhad, Harkirat Kaur, Pritee Khanna, and Aparajita Ojha. DSB-GAN: Generation of Deep Learning based Synthetic Biometric Data , Displays, 74, 102267, 2022.	10.1016/j.displa.2022.102267
Journal [Q2-IF:1.0]	Gourav Siddhad and Pritee Khanna. Max-Min Threshold based Cancelable Biometric Templates for Low-end Devices , Journal of Electronic Imaging, 31(3), 033025, 2022.	10.1117/1.JEI.31.3.033025
Journal [Q1-IF:3.5]	Anmol Gupta, Gourav Siddhad, Vishal Pandey, Partha Pratim Roy, and Byung-Gyu Kim. Subject-Specific Cognitive Workload Classification Using EEG-Based Functional Connectivity and Deep Learning , MDPI Sensors, 21(20):6710, 2021.	10.3390/s21206710
Conference	Gourav Siddhad, Pritee Khanna, and Aparajita Ojha. Cancelable Biometric Template Generation Using Convolutional Autoencoder , International Conference on Computer Vision and Image Processing (CVIP), Springer, 303-314, 2021.	10.1007/978-981-16-1086-8_27

SKILLS

Programming Frameworks	Python, C++, Java, Android, Matlab PyTorch, Keras, Tensorflow, EEG-Lab
Development Tools	Visual Studio Code, IntelliJ Idea, Eclipse, git
Operating Systems	Mac OS, Windows, Linux
Other Skills	Raspberry Pi

CERTIFICATIONS

February 2018	GATE Score - 513 AIR - 3605
February 2017	GATE Score - 324 AIR - 14454
March-May 2009	Honors Diploma in C and C++
May-July 2005	Honors Diploma in Computer Application

PROJECTS

June 2022	MLTRI: Multi-Lingual Text Recognition and Interpretation, IIT, Roorkee
January 2023	This project was funded by National Informatics Center (NIC) under the aegis of the Department of Ministry of Electronics and Information Technology, Government of India.
	Python NLP Deep Learning
March 2020	PERBI: Privacy Enhancing Revocable Biometric Identities, PDPM IIITDM, Jabalpur
December 2018	Designed and developed a user-friendly GUI for an identity verification system employing the Random Distance Method (RDM) cancelable biometric scheme proposed by H. Kaur and P. Khanna. Successfully implemented the system on a real device. This project was funded by BRNS (BARC) under the aegis of the Department of Science and Technology, Government of India.
	Python Cancelable Biometrics Cryptography Raspberry Pi
December 2019	BW2RGB: Gray to Color Image Conversion, PDPM IIITDM, Jabalpur
July 2019	Converts grayscale images or videos to color and enhances color fidelity using Multi-Resolution Analysis (MRA).).
	Neural Networks Keras Python Multimedia Processing
April 2019	Text Classification, PDPM IIITDM, Jabalpur
January 2019	Performed text classification on the Reuters-21768 Newswire dataset.
	Machine Learning Deep Learning Natural Language Processing Keras Python
April 2017	Home of Recipes, HANSRAJ COLLEGE, UNIVERSITY OF DELHI, Delhi
January 2017	Developed an Android cooking recipe app featuring ingredient-based recipe search and other functionalities.
	Android App Java
March 2016	Exam Paper Generator, HANSRAJ COLLEGE, UNIVERSITY OF DELHI, Delhi
January 2016	Develops and manages the question paper generation process, including obtaining necessary approvals from organizational heads and subject matter experts prior to exam printing.
	Software Engineering
March 2013	Final Destination, EMERALD HEIGHTS INTERNATIONAL SCHOOL, Indore
January 2013	Keyboard and mouse-controlled game featuring eight progressively challenging levels.
	Turbo C++ C/C++ Graphics

HONORS AND AWARDS

April 2021	IIITDMJ Proficiency Prize (Silver Medal) during Convocation held at/by PDPM IIITDM Jabalpur for Best Thesis among the Post Graduate students of Computer Science and Engineering Discipline in Graduating class of 2020.
July 2013	Certificate of Merit by Central Board of Secondary Education for outstanding academic performance and being among the top 0.1 % of succesfull candidates of AISSCE 2013 in Computer Science

LANGUAGES

English	● ● ● ●
Hindi	● ● ● ● ○

STRENGTHS

- Determined
- Exuberant
- Self Motivated

OUTREACH AND VOLUNTEERING

June 2020	Student Senate, PDPM IIITDM, Jabalpur
July 2019	➤ Member of the Student Senate
February 2020	Volunteer, PDPM IIITDM, Jabalpur
	➤ ISEC 2020 (Innovations in Software Engineering Conference)
March 2019	Volunteer, PDPM IIITDM, Jabalpur
	➤ DeW 2019 (Design Workshop)
July 2012	Prefect, THE EMERALD HEIGHTS INTERNATIONAL SCHOOL, Indore
April 2013	➤ Member of Discipline Team