

# Somsirsa Chatterjee

195/2, Belilious Road,  
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## Data Science Expert / Tensorflow Developer / Teacher / Speaker

Talks about #careercoach, #machinelearning, #careerdevelopment, #biomedicalengineering, and #mentalhealth

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Data Science Expert with a Master's in Biomedical Engineering and battle-tested experience in data analysis, data modelling and data visualization. Influenced and mentored more than 5000 careers in a research oriented professional career spanning more than 2 decades. Specializes in Machine Learning, Computational Intelligence and Bio Signal Processing. Adept in utilizing various machine learning algorithms, statistical, mathematical models, and data visualization tools to solve complex problems. Skilled in Python, and its various libraries like: scikit-learn, Google Tensorflow, tools like: Tableau and ObservableHQ.

Currently, he leads the first-of-its-kind Quality Enhancement and Compliance Task Force to ensure quality education and skill training at Hoping Minds in Mohali, Punjab, India.



### Education:

#### ***Master of Engineering in Biomedical Engineering,***

Jadavpur University, 2012, CGPA: 8.5/10

#### ***Bachelor of Technology in Biomedical Engineering,***

Siliguri Institute of Technology, 2009, CGPA: 8.19/10

### Skills:

- **Bio-signal Processing:** Electrocardiogram, Heart Rate Variability, Electroencephalogram
- **Medical Image Processing:** Retinal Fundus Images, Digital Chest X-Rays
- **Data Analysis:** Time Domain, Frequency Domain, Time-Frequency Domain, Nonlinear Analysis, Fuzzy Logic, Fuzzy Inference Systems, Fractal Geometry
- **Data Modelling**
- **Data Visualization** using matplotlib, seaborn and Tableau
- **Machine Learning:** Supervised Learning, Unsupervised Learning, Deep Learning using Tensorflow, Applications of Machine Learning in the fields of education and healthcare.
- **Statistical Modelling:** Exploratory Data Analysis, Hypothesis Testing, Cross-Validation, Confusion Matrix,
- **Programming Languages:** Python, Dart, C++

## **Work Experience:**

### ***Head, Quality Enhancement and Compliance Task Force (QECTF), Hoping Minds, Jan 2023 - present***

- Conducted exploratory data analysis to identify trends, patterns, and insights hidden within results datasets.
- Formulated standardized scoring systems for performance attribute metric measurement
- Designed and implemented data visualization dashboards using tools like Tableau and Observable HQ to communicate insights to stakeholders

### ***Data Science Expert, Hoping Minds, Jan 2023 - present***

- Conducted in depth analysis to identify trends, patterns, and insights hidden within the process and systems of the organization.
- Developed original teaching pedagogy and assessment patterns for an effective evaluation platform.
- Trained and assessed 90 students on Python and Fundamentals of Statistics.

### ***Assistant Professor, Chandigarh University, Dec 2018 – Apr 2021***

- Founding Coordinator, Artificial Intelligence and Machine Learning Society, Chandigarh University.
- Member, Faculty Advisory Committee.
- Member, Board of Studies (APEX-AIML).
- Placement Officer (APEX-CSE).

### ***Lead Research Engineer, Advenio Tecnosys, May 2015 – Feb 2017***

- Led the design and development team of core image processing modules for iCheck (Computer Assisted Diagnostic Tool for Diabetic Retinopathy) and RiView (Computer Assisted Diagnostic Tool for detection of Tuberculosis from Digital Chest X-Rays) using OpenCV, Python and MATLAB.
- Developed deep learning based predictive models for detection of haemorrhages, exudates (protein deposits), Retinal Detachment, Microaneurysms along with extraction of retinal vessel structure in order to identify Proliferative and Non-Proliferative Diabetic Retinopathy from retinal fundus images.
- Conducted feature engineering and feature selection to improve the accuracy of the models.
- Designed and created data visualizations to communicate insights to stakeholders.
- Authored research publications at major conferences worldwide.
- Mentoring new employees through training and induction
- Take care of day – to – day logistics and operations at development office in Chandigarh.

### ***Teaching Associate, Guru Jambheshwar University of Science and Technology, Aug 2013 – Dec 2014***

- Lectures on Signal and Image Processing, Bio-mechanics, Biomedical Instrumentation and Anatomy & Physiology.
- Hands on practical sessions on Signal and Image Processing, Biomedical Equipment.
- Conducting workshops and seminars.
- Pursuing and publishing research activities.

**Biomedical Engineer Trainee, Rabindranath Tagore International Institute of Cardiac Sciences, Dec 2009 – Jun 2010**

- Preventive Maintenance of Critical care equipment.

**Certifications:**

- [What is GenerativeAI?, LinkedIn](#)
- [Quality Management for Operational Excellence](#)
- [Tensorflow Developer, DeepLearning.AI](#)
- [Introduction to Tensorflow for Artificial Intelligence, Machine Learning and Deep Learning, DeepLearning.AI](#)
- [Convolutional Neural Networks in Tensorflow, DeepLearning.AI](#)
- [Sequences, Time series and Prediction, DeepLearning.AI](#)
- [Natural Language Processing in Tensorflow, DeepLearning.AI](#)

**Research Portfolio:**

Google Scholar: <https://scholar.google.com/citations?user=bLBUP9QAAAAJ>

Github: <https://github.com/somsirsa>

**Professional Memberships:**

- Member, International Computer Science and Engineering Society
- Member, The Society of Digital Information and Wireless Communications
- Member, International Society for Infectious Diseases
- Member, Convergent Science Network of Biomimetic and Neurotechnology
- Associate Member, Universal Association of Computer and Electronic Engineers
- Life Member, Indian Society of Biomechanics
- Life Member, Anti-Corruption International
- Life Member, Electronic Frontier Foundation

**Invited Speaker:**

- Invited Talk on ***Characterization and Comparison of HRV parameters of the Tea Garden Workers of Northern Hilly Regions of West Bengal on the basis of Age and Gender by Poincare Plot Analysis*** at National Seminar on Mathematical Modelling of Natural Phenomena; organized by Indian Society of Nonlinear Analysts, Bose Institute, Kolkata; on October 29th, 2010.
- Invited Talk on ***Poincare Plot and its application in Heart Rate Variability Analysis*** at Department of Physics, Jadavpur University, held on September 01st, 2010.

**Awards:**

- **Best Paper Award** at 5<sup>th</sup> Edition of International Conference on Wireless Networks and Embedded Systems (WECON 2016) for “Characterisation of classifier performance on left and right limb motor imagery using Support Vector Machines”
- **Most Innovative Idea Award** at WISH Healthcare Innovations Summit 2016 for iCheck – A complete end – to – end point of care solution for Diabetic Retinopathy.
- **Best Poster Award** at 3rd International Conference on Biomedical Engineering and Assistive Technologies for research titled "Analysis of Hjorth and Spectral Density Parameter During Normal and Pain Analysis of EEG"

**Languages:**

- **English** (Professional Proficiency)
- **Hindi** (Professional Proficiency)
- **Bengali** (Native or Bilingual Proficiency)

**Hobbies:**

- Listening Ghazals and Hindustani Classical Music
- Reading non-fiction books on science and philosophy.
- Volunteering as Mental Health Advocate