Uttiya **Sarkar**
Authorised to work in France

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Career Goals

To leverage more than 7 years of expertise in experimental high-energy physics in **Compact Muon Solenoid** experiment at the Large Hadron Collider, **CERN** and strong analytical skills for a successful transition into the industrial field of data science. I aspire to apply statistical modeling, machine learning, and data visualization to drive data-driven decision-making, collaborate with multidisciplinary teams, and contribute to the development of innovative solutions for business growth and optimization.

Work Experience

Post Doctoral Researcher *April 2021 – April 2023*
Ecole Polytechnique *Palaiseau, France*

- *Tasks:* Operations and performance for the data taking of the Large Hadron Collider, improving algorithms for physics object studies using machine-learning techniques.
- *Technologies used:* Object-oriented programming in C++ and Python in IDE like VSCode and Jupyter to test and version controlling in Git. Used JS, PHP, and HTML for creating and maintaining web page-based data monitoring tools.
- *Achievements: Team leader of the event trigger group, guided two PhD students. Delivered a more efficient triggering technique for improved detector performance.*

Guest and Visitor Researcher *Jan 2019 – June 2019*
Fermilab *Batavia, Illinois*

- *Tasks:* Algorithm design and testing for physics objects.
- *Technologies used:* Developed programming skills in BASH, Linux, and MacOS systems. Skills of Latex for scientific journal writing.
- *Achievements: Achieved conclusive performance studies in identifying physics objects in the detector. Gained experience in working for a large collaborative group in a diverse and multi-ethnic research group.*

Education

Ph.D. in Experimental High Energy Physics *Aug 2015 – Feb 2021*
Tata Institute of Fundamental Research *Mumbai, India*
Thesis title: Searches for supersymmetry in CMS
Achievements: Leader of the analysis team. Use of innovative data-analysis techniques including multi-variate analysis, simulations, and statistical modeling. Publication of results in a high-impact journal. Delivery of talks at major conferences on behalf of the whole collaboration.

Masters in Physics (topper in class) *Aug 2013 – June 2015*
Indian Institute of Technology, Indore *Indore, India*
Bachelors in Physics *Aug 2010 – June 2013*
Burdwan University *Burdwan, India*

Publications

- Below is the list of selected papers to which I have major contributions. View my full list of publications in: orcid, google scholar, and inspire.(**No. of publications=157, h-index=38**)
  - Search for supersymmetry in proton-proton collisions at $\sqrt{s}$ = 13 TeV in events with high-momentum Z bosons and missing transverse momentum JHEP09(2020)149

- Searches for supersymmetry in CMS ICNFP 2020 Conference Report
- Performance of the local reconstruction method for barrel and endcap hadron calorimeter at CMS in Run2 arXiv: 2306.10355

Technical skills

Programming Languages:	C++, Python, BASH
Integrated Development Env.:	VSCode, Jupyter
Version Control:	Github, Gitlab
Web Development:	Javascript, HTML, PHP
Markup:	Latex
Machine Learning:	Scikit-Learn, TensorFlow, Pytorch

Awards and Leadership Skills

CNRS Fellow	Ecole Polytechnique, Palaiseau	*2021-2023*
Topper, MSc	IIT Indore	*2015*
Leader of the data analysis team in PhD	TIFR Mumbai	*2017-2020*
Supervisor of 2 PhD and 2 Masters thesis student		*2019-present*
Conference talks in more than 10 places		▶2019-present

Languages

English	Full professional proficiency
Bengali	Native proficiency
French	Intermediate proficiency (A2/B1)
Hindi	Native proficiency

Creative skills

Film-making	Contributor to feature documentary Life in a day 2020 ▶
Music	Bronze Medalist, Tabla (Indian percussion instrument)