

Sutanu Chatterjee

Skills and Methods • October 2026

Research Engineer, ITMO University

Doctoral researcher in Physical and Mathematical Sciences

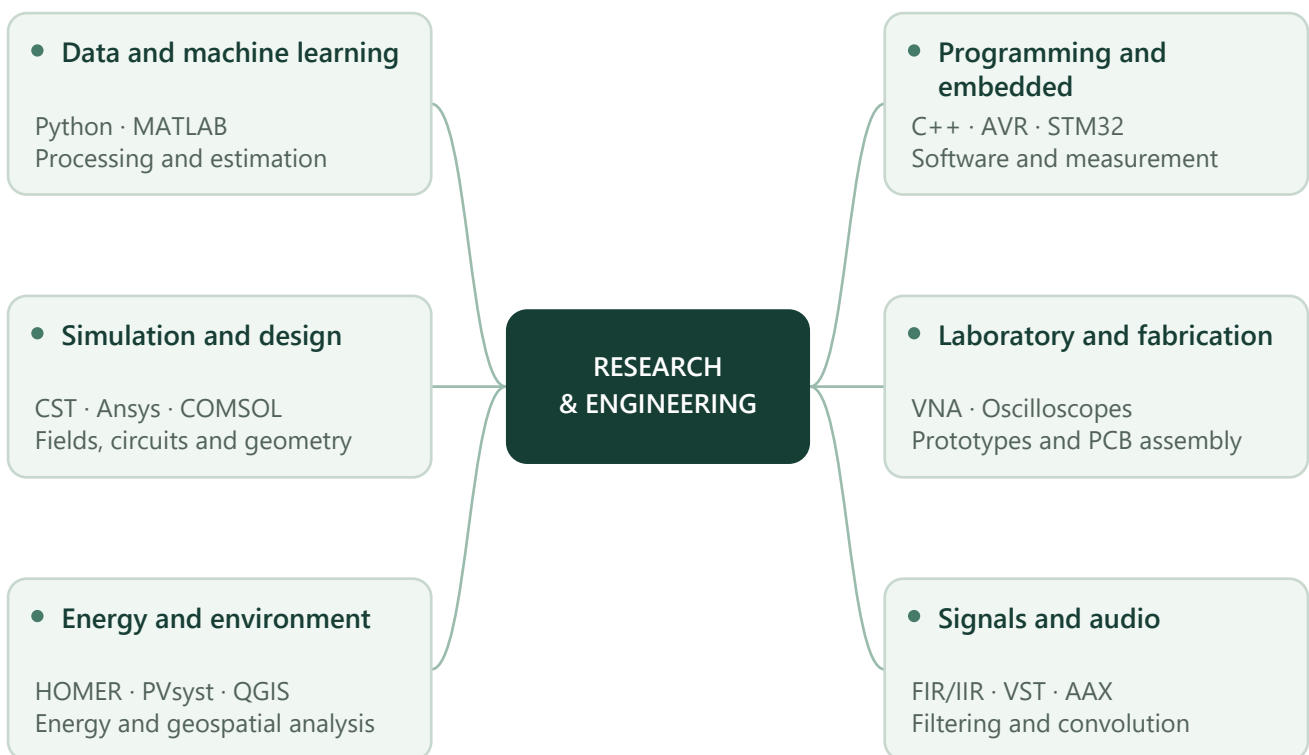
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Technical profile covering computational research, data processing, machine learning, and engineering methods.

A connected research toolkit



Data processing and machine learning

Python, MATLAB, Origin and MathCAD. Sensor and simulation data processing, parameter estimation, applied machine learning, and computational workflows for perovskite photovoltaic research.

Simulation and design

CST Studio Suite, Ansys Suite, COMSOL, Autodesk Fusion 360 and Blender. Electromagnetic and multiphysics modelling; circuit simulation using LTspice; PCB design using KiCad and EasyEDA.

Laboratory and creative tools

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Programming and embedded systems

Python, Ruby, C++, Embedded C, JavaScript, HTML/CSS, Java J2ME/J2EE, Arduino and Atmel AVR. STM32, ESP32/ESP8266, Raspberry Pi, and embedded measurement systems.

Energy and geospatial analysis

HOMER Pro, PVsyst, HelioScope, QGIS, ArcGIS, NASA POWER and Solargis for energy-system modelling and environmental analysis.

Signal processing

FIR/IIR filters, convolution, audio plug-ins, GNU Radio and SDR/RF DSP, CMSIS-DSP, Kalman and particle filters, and FlowStone.

Instrumentation and fabrication

Vector network analysers, function generators, multi-channel oscilloscopes, hand soldering and PCB assembly. Experience with CVD equipment, SEM/TEM and arc welding.

Documentation and visual communication

LaTeX, Microsoft Office 365, Adobe Illustrator, Photoshop, Premiere Pro and Acrobat Pro.

Engineering workflow



Analytical and numerical modelling, prototype construction, experimental validation, and technical documentation.

Software I have built

Sauryalic ATEARES; Matching Network Designer; WPT Unified Design Suite; EV Coil Parameter Estimator; Rectangular Planar Spiral Estimator.

Current computational research

Sutanu Chatterjee, Aleksandra Furasova, Sergey Makarov. Machine-Learned Selection of the Size and Placement of Mie-Resonant Silicon Nanoparticles in Perovskite Solar Cells. *Photonics and Nanostructures - Fundamentals and Applications*. Minor revisions requested; acceptance pending.

Sutanu Chatterjee, Vladislav Kalinichenko, Aleksandra Furasova, Sergey Makarov. A Computational Framework for Perovskite Indoor Photovoltaic Energy Harvesting. *Journal of Computational Electronics*. Under peer review.

Training and languages

Robotics and Internet of Things, LETI (4 ECTS); AVR programming, Technophilia; Java Enterprise Edition, NVIT Kolkata (2016); Java Micro Edition, C Wizards Kolkata (2014).

English (native, C2), Bengali (native), Hindi (native), Russian (B2, working proficiency).