

Sutanu Chatterjee

Complete CV • October 2026

Research Engineer, ITMO University

Doctoral researcher in Physical and Mathematical Sciences

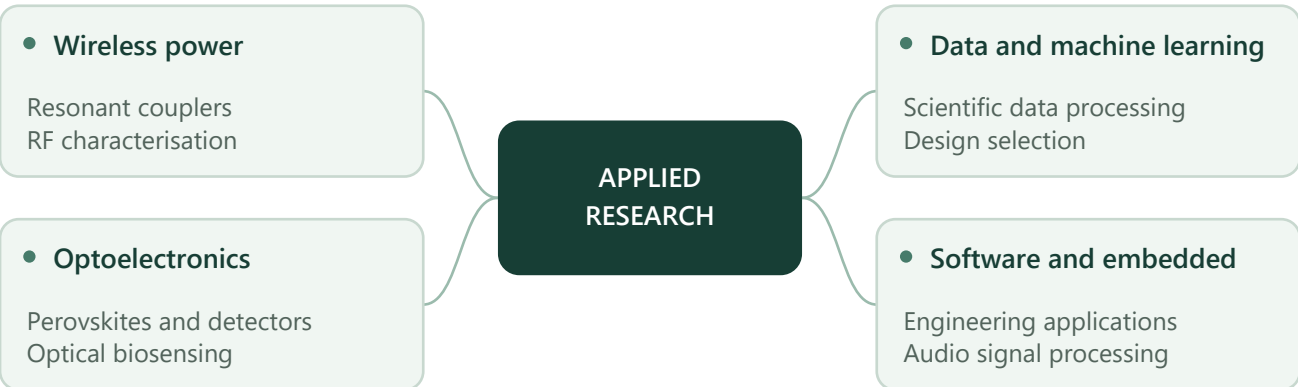
St. Petersburg, Russia • sutanuchatterjee93@gmail.com

+7 952 218 05 28 • +91 973 593 98 89

ronn.cc • ORCID 0000-0002-7888-5764 • [Google Scholar](#) • [ITMO profile](#)

Applied physicist and research engineer working across wireless power transfer, optoelectronics, and computational methods. I develop analytical and numerical models, process experimental and simulation data, and build and validate hardware. My work includes machine learning, perovskite photovoltaics, embedded systems, and audio DSP. I also build browser-based engineering software for energy analysis and circuit design.

Research and technical focus



Research appointments

Research Engineer | ITMO University

2022–present • Department of Physics and Engineering • St. Petersburg

Wireless power transfer for low- and high-power applications, including coupler design, resonant metasurfaces, parameter estimation and control. Electromagnetic modelling in CST Studio Suite and Ansys, prototype construction, and validation with RF instrumentation.

Visiting Research Collaborator | Harbin Engineering University

Repeated visits since 2024 • Qingdao Innovation and Development Center • China

Collaborative research on wireless power transfer, metasurface resonators, and biomedical instrumentation. Co-author of published 2026 papers in IEEE T-MTT and IEEE Journal of Oceanic Engineering.

Research and Analysis | Ioffe Physical-Technical Institute

2020–2021 • St. Petersburg

Studied coastal-current effects on renewable energy generation in the Indian subcontinent.

Professional experience and education

Sutanu Chatterjee • Complete CV

- **Founder and Engineer | Alternoid Electronics**

2014–present • India

Registered start-up developing electrical power supplies, switched-mode and linear circuits, audio electronics, and digital processing tools.

- **Third-party Software Developer | Steinberg Media Technologies**

January 2017–February 2019 • Remote

Audio software development with the VST SDK, C++ and Ruby.

- **Restoration Engineer | Weavers Studio Center for the Arts**

2014–2018 • Kolkata

Custom filters and algorithms to reduce static and dynamic noise in historical recordings dating from 1903 onwards.

- **Development Partner | Avid Technology**

2014–2016 • Remote

DSP plug-ins in AAX format for Pro Tools 10 and later.

Education

- **PhD in Physical and Mathematical Sciences | ITMO University**

2023–present • Ongoing

Optoelectronics and photonics for sensing applications. Advisor: Prof. Sergey Makarov. Russian Government Scholarship Quota.

- **MSc Electronics and Nanoelectronics | LETI**

2019–2021 • Honours • GPA 4.92/5.00

Specialisation in photovoltaics and solar energy technology. Thesis on coastal-current effects on solar–wind generation and the economics of rural solar power in eastern India.

- **BTech Electronics and Communications Engineering | GNIT**

2012–2016 • Kolkata, India

Among the top ten departmental scorers in the final semester. Thesis: BiRanger 1.0, a semi-autonomous robot with acoustic ranging, weather measurements, and remote control.

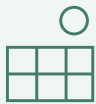
Additional education: sound recording and design studies, Satyajit Ray Film and Television Institute, 2016–2018 (scholarship; programme not completed). ICSE and ISC, Don Bosco School, Siliguri, 2010 and 2012.

Software I have built

Sutanu Chatterjee • Complete CV

Browser-based tools for renewable-energy analysis, circuit design, and wireless power engineering. These analytical tools support modelling and concept sizing.

Software portfolio • Source code on GitHub



PROJECT 01

Sauryalic ATEARES

Browser-based solar PV feasibility, storage sizing, plant design, and levelised cost of electricity analysis using NASA POWER climate data.

[Open application](#)



PROJECT 02

Matching Network Designer

L-match synthesis for resonant two-port networks, with reflected impedance, component losses, stress and bandwidth estimates, circuit schematics, and CSV export.

[Open application](#)



PROJECT 03

WPT Unified Design Suite

A concept-design workspace combining coupled-coil estimates, power-stage efficiency predictors, and a saveable design summary for wireless power systems.

[Open application](#)



PROJECT 04

EV Coil Parameter Estimator

Estimates coupling, inductances, Q factor, resistance, and efficiency for an 11 kW EV charging link using FEM-fitted polynomial models and a dimensioned preview.

[Open application](#)



PROJECT 05

Rectangular Planar Spiral Estimator

Estimates self-inductance from rectangular spiral geometry using the Aebischer formula, with a live engineering schematic and instant results.

[Open application](#)

Skills and recognition

Sutanu Chatterjee • Complete CV

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.

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.

Awards and scholarships

- Russian Government Scholarship Quota for doctoral studies, ITMO University, 2023.
- Best International Graduate (Master's) Award, LETI, 2021.
- Master's with Honours (Red Diploma), GPA 4.92/5.00, 2021.
- Third-degree diploma in LETI's 2020/21 master's final-thesis awards.
- Merit-based full Russian Government Scholarship, 2019–2021.
- Zonal winner, Indo-US Robo-League 2014; qualified for the national level at IIT Bombay.
- Award of Excellence for signal processing software development; Certificate of Excellence for Best Technological Innovation.

Additional training

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

Languages

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

Journal articles and manuscripts

Sutanu Chatterjee • Complete CV

Published journal articles

J. Ye, S. Chatterjee, Z. Liu, B. Zhang, X. Liu, M. Song. **A Multimode Near-Field Radio Frequency Metasurface Resonator Transmitter for Multireceiver Power Transfer at 6.78 MHz.** *IEEE Transactions on Microwave Theory and Techniques*. Published online 9 September 2026. doi:10.1109/TMTT.2026.3729012

B. Zhang, C. Q. Jiang, Y. Lu, B. Cheng, F. Yang, L. Huang, W. Qin, S. Chatterjee, M. Song. **Underwater Energy Replenishment Platform with a Reconfigurable Magnetic Coupler for AUV Wireless Charging.** *IEEE Journal of Oceanic Engineering*. Published online 22 September 2026. doi:10.1109/JOE.2026.3722119

S. Chatterjee, A. Zolotarev, P. Terenteva, G. Baranov, P. Kapitanova. **Real-time estimator of parameters for coupled coils in an 11 kW wireless charging system for electric vehicles.** *Wireless Power Transfer*. 2025, vol. 12, article e027. doi:10.48130/wpt-0025-0019

A. V. Zolotarev, G. V. Demidova, A. S. Tsyrynova, P. V. Terenteva, G. D. Baranov, S. Chatterjee. **Synthesis of a simulation model of coupled coils in an electric vehicle wireless charging system.** *Russian Electrical Engineering*. 2024, vol. 95, no. 1, pp. 81–87. doi:10.3103/S1068371224010127

Manuscripts under review

These manuscripts are not yet accepted or published. Statuses updated October 2026.

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.

Further publications

Sutanu Chatterjee • Complete CV

Book chapter

S. Chatterjee, Y. Zhao, Q. Zhou, D. Lukichev, A. Mamatov, and G. Demidova, Advanced power converters in wind energy systems: topologies, control strategies, and grid integration, in Advanced Wind Energy Systems: Grid Integration, Markets and Sustainability, 2026.

Conference papers

S. Chatterjee, X. Liu, and M. Song, Stochastic contact modeling of dry electrodes for common-mode rejection in brain-machine interfaces, 2026 IEEE International Applied Computational Electromagnetics Society Symposium (ACES-China), 2026. Accepted.

A. V. Zolotarev, E. A. Koreshin, S. Chatterjee, J. J. Justo, G. L. Demidova, P. V. Kapitanova, and R. C. Bansal, Performance validation of wireless power transfer for UAVs charging system considering misalignments, 2025 Fourth International Conference on Power, Control and Computing Technologies (ICPC2T), pp. 1 to 6, IEEE, 2025.

S. Chatterjee, A. Zolotarev, P. Terenteva, G. Baranov, and P. Kapitanova, Quick estimation of coupling coefficient in an electric vehicle wireless charging system, 2024 Antennas Design and Measurement International Conference (ADMInC), pp. 40 to 42, IEEE, 2024.

N. Kostik, A. Bobyl, R. Davydov, and S. Chatterjee, Modelling energy production and consumption in relation to climate parameters, 2021 International Conference on Electrical Engineering and Photonics (EExPolytech), pp. 273 to 277, IEEE, 2021. DOI 10.1109/EExPolytech53083.2021.9614785.

S. Barua and S. Chatterjee, Design of an automated and wirelessly controlled agricultural system for Siberian regions, Proceedings of the XIII Congress of Young Scientists, St. Petersburg, 8 to 11 April 2024.

Publications in Russian

А. В. Золотарев, Г. Л. Демидова, А. С. Цыринова, П. В. Терентьева, Г. Д. Баранов, С. Чаттерджи, Синтез имитационной модели связанных катушек в системе беспроводной зарядки электрического транспорта, Электротехника, № 1, с. 80 to 86, 2024.

А. В. Золотарев, Е. А. Корешин, А. С. Цыринова, С. Чаттерджи, П. В. Капитанова, Г. Д. Баранов, Система беспроводного питания датчиков, стационарно установленных в нефтегазовых скважинах, Наноиндустрия, т. 17, № S10-1 (128), с. 85 to 89, 2024.

А. В. Золотарев, Г. Д. Баранов, А. С. Цыринова, С. Чаттерджи, П. В. Терентьева, Г. Л. Демидова, П. В. Капитанова, Система беспроводной зарядки электротранспорта, Наноиндустрия, т. 17, № S10-1 (128), с. 90 to 95, 2024.

The Elektrotehnika article is the Russian-language original of the 2024 Russian Electrical Engineering journal article.