Curriculum Vitae – Ujjal Mandal

Personal Information

Ujjal Mandal
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Objective

- Aspiring to leverage my academic background in Physics, along with my technical skills in programming, web development, and scientific tools, to contribute to innovative research and development projects. I am eager to apply my analytical and problem-solving abilities in a dynamic work environment, with a focus on continuous learning and professional growth, while exploring opportunities in the IT sector for interdisciplinary collaboration. I believe in maintaining clarity not only in my work but also in thought and collaboration. I value working with neat, organized, and clean-minded individuals who share a similar dedication toward excellence.

Education

Doctor of Philosophy, PhD in Physical Science *July, 2021-July 2026*
Indian Institute of Information Technology Allahabad (An Institute of National Importance), Deoghat, Jhalwa, Prayagraj, India. It os one of the 25 Indian Institute of Information Technology listed by Ministry of Education (India). 1st semester SGPI : 8.63; 2nd semester SGPI : 9.28; 3rd semester SGPI : 9.27; 4th semester SGPI : 9.59; 5th semester SGPI : 9.10.

Bachelor of Education, B.Ed. in Physical Science *Oct, 2020-Oct, 2022*
Baba Saheb Ambedkar Education University, formerly known as West Bengal University of Teachers' Training, Education Planning and Administration, (UGB), Malda, West Bengal, India.
Public State University Established by an Act of the West Bengal legislature published in the Kolkata Gazette, Extraordinary, 16 January 2015.
Grade : A - 9.55/10 CGPA.

Master of Science, M.Sc in Physics, Special Paper : Computational Physics *Oct, 2018-Oct, 2020*
University of Gour Banga (UGB), Malda, West Bengal, India.
Public State University Established in 2008 by the Government of West Bengal on Act XXVI 2007.
Grade : A - 7.79/10 CGPA and 73%.

Bachelor of Science, B.Sc (Honours) in Physics *Aug, 2015-Aug, 2018*
Dum Dum Motijheel College is Affiliated by West Bengal State University (WBSU), Kolkata, West Bengal, India. Public State University Established by an Act of the Legislative Assembly on 2007.
Overall Grade : First Class - 63.25%; First Year : First Class - 61.50%; Second Year : First Class - 60.00%; Third Year : First Class - 65.75%.

Intermediate (10+2) *2014*
West Bengal Council of Higher Secondary Education
Overall Grade : A - 77.6%, Physics marks : 90/100.

High School (10th) *2011*
West Bengal Board of Secondary Education
Overall Grade : A+ - 80.01%, Physical Science marks : 96/100.

Skills

Operating systems : Windows and Linux.

Programming languages : Fortran, C, C++, CUDA

Office softwares : Microsoft Office, Open Office, LaTeX, DocBook, LibreOffice.

Scientific softwares and tools : Matlab, kWave, Mathematica, Scilab, InkSpace, Github

Web Development Skills : HTML, CSS, Java, RMarkdown , Website Deploy and Hosting.

Languages : Bengali, Hindi, English.

Seminar Attended

- **Workshop : Photonics for Health, Atmosphere, Safety and Education (PHASE 2023)**, March 30-31, 2023
  Organized under the Distinguished International Associate (DIA) award of the Royal Academy of Engineering, UK. Involved 17 invited speakers, a poster session, laboratory visits, and hands-on sessions. Location : IITGN.

- **Symposium cum Hands-on Workshop on Medical Imaging**, October 20-22, 2022
  Location : IISERTVM.
- **Contribution of Physics Towards Atma Nirbhar Bharat**, July 30-31, 2020
  Location : N.S.B.C Govt. College Biaora, MP.
- **Workshop on Innovative Experiment Students**, November 7-8, 2017
  Organized by UGC-DAE. Location : Kolkata.
- **Discussion Meeting on Science Related to Space & Nuclear in Research and Industry**, October 6-7, 2015
  Location : SINP, Kolkata.

Certifications

- **Eligibility for Assistant Professorship**, NTA, 01 April 2021.
  Joint CSIR-UGC NET Physical Science, All India Rank 218, Certificate ID : JUN20C08182.
- **Artificial Intelligence (AI) for Social Impact**, ADBInstitute, 26 September 2024.
  Certificate ID : 111605-172-735-1761.
- **Front End Development - CSS**, Great Learning, September 2024.
  Certificate ID : CDXRPNHH. Show credential : CDXRPNH
- **Front End Development - HTML**, Great Learning, September 2024.
  Certificate ID : LTPCXHBV. Show credential : LTPCXHBV
- **Data Structures in C**, Great Learning, September 2024.
  Certificate ID : FZFXVNTI. Show credential : FZFXVNTI
- **Introduction to Fourier Series**, Great Learning, September 2024.
  Certificate ID : KQCRUCVD. Show credential : KQCRUCVD
- **Digital Image Processing**, Great Learning, September 2024.
  Certificate ID : XFPHWCTC. Show credential : XFPHWCTC
- **SQL Projects for Beginners**, Great Learning, September 2024.
  Certificate ID : OOMFVUBW. Show credential : OOMFVUBW
- **COMSOL Multiphysics : Basics to Advanced** , Udemy, 27 September 2024.
  Certificate ID : UC-c3915a05-4600-4fe7-a2d7-d3c32bea7b12.
- **The Complete C Programming Course for Beginners**, Udemy, 27 September 2024.
  Certificate ID : UC-e78e834a-dde1-42d4-8568-fa6aa384c309.
- **Visual representations of data and information**, The Open University, 28 September 2024.
  Certificate ID : T2151.
- **Debugging and Error Handling** , Matlabacademy, September 2024.
  Certificate ID : ada9ebe9-d553-4add-82b4-280d465db638.

Journal Publications

1. Ujjal Mandal, Navroop Singh, Kartikay Singh, Vinit Nana Hagone, Jagpreet Singh, Anshu S. Anand, Ben T. Cox, Ratan K. Saha,. Efficient implementations of a Born Series for computing photoacoustic field from a collection of erythrocytes. Photoacoustics. Volume 43, 2025, 100724, ISSN 2213-5979.
   DOI : https://doi.org/10.1016/j.pacs.2025.100724
2. Ujjal Mandal, Jagpreet Singh, Ben T Cox, Ratan K Saha. (2025). GPU Accelerated Transducer-Field Calculation using the Traditional Born Series Formulation for Realistic Media. arXiv.
   DOI : https://arxiv.org/abs/2507.13754

Conference Publications

1. Ujjal Mandal, Jagpreet Singh, and Ratan K Saha. (2023). On the Born series methods for solving inhomogeneous Helmholtz equation in biomedical photoacoustics. In : Opto-Acoustic Methods and Applications in Biophotonics VI. Optica Publishing Group, 126310W.
   DOI : https://doi.org/10.1117/12.2670935
2. Ratan K Saha, Ujjal Mandal. (2023). Estimation of optoacoustic spectra for normal and pathological red blood cells using a modified Green's function approach. In : Opto-Acoustic Methods and Applications in Biophotonics VI. Optica Publishing Group, 126310W.
   DOI : https://doi.org/10.1117/12.2670933

Teaching Experience

Indian Institute of Information Technology Allahabad (IIITA)
Numerical Methods (B.Tech 7th Sem, M.Tech & PhD) *July 2024 - Present*
- Delivered lectures on numerical algorithms and computational techniques
- Supervised programming assignments and projects

Tomography Imaging (B.Tech 6th Sem) *Dec 2022 - May 2023*
- Taught image reconstruction algorithms and practical implementations
- Guided laboratory sessions on medical imaging techniques

Engineering Physics (B.Tech 1st Sem) *Dec 2022 - May 2023*
Physics (B.Tech 1st Sem) *July 2022 - Dec 2022*
- Conducted theory classes and laboratory demonstrations
- Developed course materials and problem sets

Hatimari High School

Physics (9th & 10th Standard) *Apr 2020 - Dec 2021*
- Prepared lesson plans and conducted interactive classes
- Organized practical demonstrations and science projects
- Provided individual mentoring to students

Conference Presentations

- **Solution of inhomogeneous Helmholtz wave equation in photoacoustics by Born series approach**
  PHASE 2023 Workshop, IIT Gandhinagar, March 31, 2023