

TUTAN GHOSH

Curriculum Vitae
State Aided College Teacher (SACT)
Ph.D. Scholar, MAKAUT
Phone: +91 9836989900
Email: tutanghosh1@gmail.com
Google Scholar: Google Scholar
ORCID: 0009-0002-3280-3150
Kolkata, West Bengal, India

RESEARCH PROFILE

Research Interests: Artificial Intelligence, Cyber Security, Zero Trust Architecture, Post-Quantum Cryptography, IoT Security, Digital Forensics, Network Security, Cloud Security, Intelligent Intrusion Detection Systems.

Current Ph.D. Research: Real Time Intrusion Detection and Mitigation Techniques for Critical Systems.

EDUCATION & EMPLOYMENT HISTORY

Doctor of Philosophy (Ph.D.)

Year of completion: Pursuing (2023 – Present)

Institution: Maulana Abul Kalam Azad University of Technology (MAKAUT), West Bengal

Research Title: *Real Time Intrusion Detection and Mitigation Techniques for Critical Systems*

Master of Computer Applications (MCA)

Year of completion: 2014

Institution: West Bengal University of Technology (WBUT)

Department: Computer Applications

Bachelor of Computer Applications (BCA)

Year of completion: 2011

Institution: West Bengal University of Technology (WBUT)

Department: Computer Applications

State Aided College Teacher (SACT)

Time Period: Present

Institution: Barasat College

Department: Computer Science

Teaching undergraduate Computer Science courses including Cyber Security, Database Management Systems, Oracle SQL, Programming and Computer Networks, Cloud Computing. Guiding student projects and conducting practical laboratory sessions.

Part-Time Faculty

Time Period: 2 Years

Institution: Ramakrishna Mission Vivekananda Centenary College

Department: Computer Science

Delivered undergraduate and postgraduate teaching for B.Sc. and M.Sc. Computer Science programmes. Courses taught included Computer Networks, Cyber Security, Cryptography, Programming Languages, Database Management Systems, Operating Systems, and related Computer Science subjects. Responsibilities included lecture delivery, laboratory instruction, curriculum support, student mentoring, project supervision, and examination and evaluation activities.

Computer Analyst

Time Period: Previous Employment

Institution: Kolkata Police

Department: Cyber Patrol Cell

Developed secure web applications using Java, Oracle SQL/PLSQL, HTML, CSS and JavaScript. Managed Linux servers and supported cyber security operations, etc.

District Programme Management Executive

Time Period: Previous Employment

Institution: Office of the District Magistrate, North 24 Parganas

Department: e-Governance

Managed Aadhaar implementation projects, coordinated e-Governance initiatives, and supervised project implementation activities.

Support Executive

Time Period: Previous Employment

Institution: Tata Consultancy Services (TCS)

Department: Integrated Financial Management System (IFMS)

Provided enterprise application support, Oracle database support, incident management and client technical support.

PUBLICATIONS

Peer-Reviewed Journal Articles

1. Tutan Ghosh, Ira Nath.

Secure Satellite Communication in the Post-Quantum Era: A Lattice-Based Cryptographic Approach

International journal of satellite communications and networking, 2026. **Indexed in:** SCI, Scopus

DOI: 10.1002/sat.70041

Peer-Reviewed Book Chapters

1. Ghosh, T. *AI-Integrated Cybersecurity Design Frameworks for IoT-Enabled Smart Farming Systems*. IGI Global, 2025. **Indexed in:** Scopus

Available at: IGI Global Book Chapter

Books

No books published to date.

Conference Papers

Currently engaged in research and preparing manuscripts for publication in leading international conferences.

Other Scholarly Contributions

Research activities focus on Cyber Security, Artificial Intelligence, Intrusion Detection Systems, IoT Security, Zero Trust Architecture, and Post-Quantum Cryptography.

Journal Articles	1
Book Chapters	1
SCI Indexed Publications	1
Scopus Indexed Publications	2
Google Scholar Citations	5
h-index	1
i10-index	0

SOFTWARE DEVELOPMENT & TECHNICAL PROJECTS

- **School Management System**

Developed a comprehensive web-based School Management System for **The Future Scholars Academy and SERAPHIM'S ASSEMBLY SCHOOL, Kolkata**, including modules for student information management, attendance, examination, result processing, fee management, staff management, and administrative reporting.

- **Integrated Financial Management System (IFMS)**

Provided enterprise application and Oracle database support while working at **Tata Consultancy Services (TCS)** for the Integrated Financial Management System (IFMS).

- **Cyber Patrol Applications**

Designed, developed, and maintained secure web-based applications for the **Kolkata Police Cyber Patrol Cell** using Java, Oracle SQL/PLSQL, HTML, CSS, and JavaScript.

- **Server Installation and Administration**

Configured, deployed, and maintained Linux-based application and database servers for the **Kolkata Police Cyber Patrol Cell**. Responsibilities included server setup, deployment, system configuration, application hosting, database connectivity, user management, backup, and maintenance.

- **Laboratory Server Setup (MAKAUT)**

Participated in server setup, configuration, deployment, and maintenance activities at **Maulana Abul Kalam Azad University of Technology (MAKAUT)** to support academic and services.

- **AI-Based Intrusion Detection Systems**

Developing intelligent intrusion detection and mitigation frameworks for critical systems as part of ongoing Ph.D. research using Artificial Intelligence, Machine Learning, Zero Trust Architecture, and Post-Quantum Cryptography.

GRANTS

External Grants

Funded

No externally funded research grants received to date.

Pending

Currently preparing competitive research proposals in the areas of Artificial Intelligence, Cyber Security, Zero Trust Architecture, Internet of Things (IoT) Security, and Post-Quantum Cryptography for submission to national and international funding agencies.

Future Funding Interests

Potential funding agencies include:

- Anusandhan National Research Foundation (ANRF), India
- Department of Science and Technology (DST), India
- Ministry of Electronics and Information Technology (MeitY)
- AICTE Research Promotion Scheme
- SERB (Science and Engineering Research Board)
- IEEE Foundation Research Grants
- Horizon Europe

Internal Grants

Funded

No internal research grants received to date.

Pending

No internal grant proposals under review at present.

Future Proposal Areas

Research proposals are being developed in the following areas:

- AI-driven Intrusion Detection Systems
- Intelligent Zero Trust Architecture
- Post-Quantum Cyber Security
- Secure IoT Communication
- Critical Infrastructure Protection
- Federated Learning for Cyber Defence

PROFESSIONAL CERTIFICATIONS

- **Practical Cyber Security for Cyber Security Practitioners**

Provider: National Programme on Technology Enhanced Learning (NPTEL), IIT Madras

Category: Professional Certification

Domain: Cyber Security

Skills Acquired: Cyber Security Fundamentals, Threat Analysis, Network Security, Vulnerability Assessment, Incident Response, Risk Management.

TEACHING AND ADVISING

Courses

- Cyber Security
- Computer Networks
- Cryptography and Network Security
- Database Management Systems (DBMS)
- Oracle SQL and PL/SQL
- Programming Languages (C, C++, Java, Python)
- Operating Systems
- Data Structures
- Object-Oriented Programming
- Internet of Things (IoT)
- Software Engineering

Teaching Experience:

- State Aided College Teacher (SACT), Barasat College.
- Part-Time Faculty, Ramakrishna Mission Vivekananda Centenary College.
- Delivered undergraduate and postgraduate courses for B.Sc. Computer Science and M.Sc. Computer Science students.
- Conducted theory and laboratory classes in Computer Networks, Cyber Security, Cryptography, Programming Languages, Database Management Systems, Operating Systems, and related Computer Science subjects.
- Prepared course materials, laboratory manuals, assignments, question papers, and evaluated student performance.
- Guided undergraduate student projects and provided academic mentoring.

Supervision of Graduate Students

Mentored M.Sc. Computer Science students in coursework, laboratory sessions, seminar presentations, and project-based learning. Assisted students in technical report writing, software implementation, and research methodology.

Supervision of Undergraduate Students

Supervised B.Sc. Computer Science students in software development projects, programming assignments, database applications, networking laboratories, and Cyber Security practical sessions.

Advising Activities

- Academic mentoring for undergraduate and postgraduate students.
- Career guidance for higher education and research.
- Project mentoring in Cyber Security, Artificial Intelligence, Networking, Database Systems, and Programming.
- Curriculum planning and laboratory coordination.
- Student assessment, examination, and evaluation.
- Guidance on technical report writing, presentations, and research methodology.
- Participation in departmental academic and administrative activities.

SERVICE & PROFESSIONAL DEVELOPMENT

Service to the Institution

Department Service

- Conducted theory and laboratory classes for undergraduate and postgraduate Computer Science programmes.
- Prepared course materials, laboratory manuals, assignments, and examination question papers.
- Evaluated answer scripts, laboratory performance, and student projects.
- Mentored students in academic projects, programming, and Cyber Security-related activities.
- Participated in departmental academic planning and curriculum support.

College Service

- Contributed to academic administration and departmental activities.
- Assisted in organizing seminars, workshops, and student-oriented technical events.
- Supported examination duties, admissions, and institutional academic activities.

University Service

Currently contributing through teaching, research, and academic activities affiliated with MAKAUT as a Ph.D. Scholar.

Service to the Discipline and Profession

- Conducting research in Cyber Security, Artificial Intelligence, IoT Security, and Network Security.
- Publishing research in internationally recognized journals and book chapters.
- Promoting secure computing practices through academic teaching and research.
- Participating in professional development through NPTEL and other online certification programmes.

Service to the Community and Public

- Contributed to e-Governance initiatives during service at the Office of the District Magistrate, North 24 Parganas.
- Supported public digital service implementation through Aadhaar enrolment and e-Governance projects.
- Promoted awareness of Cyber Security and responsible use of digital technologies among students.

Professional Development

- Ph.D. Scholar in Information Technology, MAKAUT.
- Completed professional certification programmes through NPTEL and other online learning platforms.
- Published peer-reviewed research in international journals and book chapters.
- Continuously updating knowledge in Artificial Intelligence, Zero Trust Architecture, Post-Quantum Cryptography, IoT Security, and Intelligent Intrusion Detection Systems.