

# IIT GUWAHATI COMPUTER SCIENCE FACULTY

**IIT GUWAHATI COMPUTER SCIENCE FACULTY** REPRESENTS ONE OF THE PREMIER ACADEMIC BODIES IN INDIA, RENOWNED FOR ITS EXPERTISE IN COMPUTER SCIENCE EDUCATION AND RESEARCH. THE FACULTY AT IIT GUWAHATI'S DEPARTMENT OF COMPUTER SCIENCE AND ENGINEERING IS COMPOSED OF HIGHLY QUALIFIED PROFESSORS, ASSOCIATE PROFESSORS, AND ASSISTANT PROFESSORS WHO CONTRIBUTE SIGNIFICANTLY TO THE FIELD THROUGH INNOVATIVE RESEARCH, QUALITY TEACHING, AND ACTIVE INDUSTRY COLLABORATION. THIS ARTICLE EXPLORES THE STRUCTURE, EXPERTISE, AND ACCOMPLISHMENTS OF THE IIT GUWAHATI COMPUTER SCIENCE FACULTY, HIGHLIGHTING THEIR ACADEMIC QUALIFICATIONS, RESEARCH AREAS, AND CONTRIBUTIONS TO CUTTING-EDGE TECHNOLOGY. THE FACULTY'S COMMITMENT TO FOSTERING A RIGOROUS LEARNING ENVIRONMENT AND ADVANCING COMPUTER SCIENCE KNOWLEDGE MAKES IIT GUWAHATI A SOUGHT-AFTER INSTITUTION FOR STUDENTS AND RESEARCHERS ALIKE. IN ADDITION, THIS ARTICLE DELVES INTO THE VARIOUS RESEARCH GROUPS, ONGOING PROJECTS, AND THE FACULTY'S ROLE IN SHAPING THE FUTURE OF COMPUTER SCIENCE EDUCATION IN INDIA. THE DETAILED OVERVIEW AIMS TO PROVIDE A COMPREHENSIVE UNDERSTANDING OF THE IIT GUWAHATI COMPUTER SCIENCE FACULTY'S STRENGTHS AND IMPACT.

- OVERVIEW OF IIT GUWAHATI COMPUTER SCIENCE FACULTY
- ACADEMIC QUALIFICATIONS AND EXPERTISE
- RESEARCH AREAS AND SPECIALIZATIONS
- FACULTY ACHIEVEMENTS AND CONTRIBUTIONS
- TEACHING AND MENTORSHIP
- COLLABORATIONS AND INDUSTRY ENGAGEMENT
- FACILITIES AND RESEARCH INFRASTRUCTURE

## OVERVIEW OF IIT GUWAHATI COMPUTER SCIENCE FACULTY

THE IIT GUWAHATI COMPUTER SCIENCE FACULTY COMPRISES A DIVERSE GROUP OF ACADEMICIANS WITH EXTENSIVE EXPERIENCE IN VARIOUS DOMAINS OF COMPUTER SCIENCE AND ENGINEERING. THE DEPARTMENT EMPHASIZES INTERDISCIPLINARY RESEARCH AND INNOVATION, SUPPORTED BY A FACULTY TEAM THAT COMBINES THEORETICAL KNOWLEDGE WITH PRACTICAL APPLICATIONS. FACULTY MEMBERS ACTIVELY PARTICIPATE IN NATIONAL AND INTERNATIONAL CONFERENCES, PUBLISH IN REPUTED JOURNALS, AND CONTRIBUTE TO CURRICULUM DEVELOPMENT TO KEEP PACE WITH TECHNOLOGICAL ADVANCEMENTS. THEIR DEDICATION ENSURES THAT IIT GUWAHATI REMAINS AT THE FOREFRONT OF COMPUTER SCIENCE EDUCATION AND RESEARCH IN INDIA.

## ACADEMIC QUALIFICATIONS AND EXPERTISE

THE FACULTY MEMBERS AT IIT GUWAHATI'S DEPARTMENT OF COMPUTER SCIENCE AND ENGINEERING POSSESS IMPRESSIVE ACADEMIC CREDENTIALS, INCLUDING PHDs FROM PRESTIGIOUS INSTITUTIONS WORLDWIDE. THEIR EXPERTISE SPANS MULTIPLE SUBFIELDS SUCH AS ARTIFICIAL INTELLIGENCE, MACHINE LEARNING, DATA SCIENCE, COMPUTER NETWORKS, CYBERSECURITY, AND SOFTWARE ENGINEERING. MANY PROFESSORS HAVE EARNED RECOGNITION FOR THEIR ACADEMIC EXCELLENCE AND HAVE SERVED AS KEYNOTE SPEAKERS, REVIEWERS, AND EDITORS FOR LEADING ACADEMIC PUBLICATIONS. THE COMBINATION OF THEIR DIVERSE EDUCATIONAL BACKGROUNDS AND SPECIALIZED KNOWLEDGE CONTRIBUTES SIGNIFICANTLY TO THE DEPARTMENT'S ACADEMIC RIGOR.

## FACULTY COMPOSITION

THE DEPARTMENT CONSISTS OF PROFESSORS, ASSOCIATE PROFESSORS, AND ASSISTANT PROFESSORS, EACH CONTRIBUTING UNIQUELY TO THE DEPARTMENT'S ACADEMIC AND RESEARCH GOALS. VISITING FACULTY AND ADJUNCT PROFESSORS FROM INDUSTRY AND ACADEMIC INSTITUTIONS ALSO ENRICH THE DEPARTMENT'S INTELLECTUAL ENVIRONMENT. THIS MULTIDISCIPLINARY TEAM ENHANCES THE BREADTH AND DEPTH OF THE EDUCATIONAL EXPERIENCE FOR STUDENTS.

## AREAS OF EXPERTISE

THE IIT GUWAHATI COMPUTER SCIENCE FACULTY'S EXPERTISE INCLUDES BUT IS NOT LIMITED TO:

- ARTIFICIAL INTELLIGENCE AND MACHINE LEARNING
- DATA ANALYTICS AND BIG DATA
- COMPUTER VISION AND PATTERN RECOGNITION
- NETWORKS AND DISTRIBUTED SYSTEMS
- CYBERSECURITY AND CRYPTOGRAPHY
- HUMAN-COMPUTER INTERACTION
- SOFTWARE ENGINEERING AND SYSTEMS
- EMBEDDED SYSTEMS AND IoT

## RESEARCH AREAS AND SPECIALIZATIONS

THE RESEARCH CONDUCTED BY THE IIT GUWAHATI COMPUTER SCIENCE FACULTY REFLECTS THE LATEST TRENDS AND CHALLENGES IN THE FIELD. FACULTY MEMBERS LEAD PROJECTS THAT ADDRESS BOTH FUNDAMENTAL SCIENTIFIC QUESTIONS AND PRACTICAL TECHNOLOGICAL PROBLEMS. THEIR RESEARCH OUTPUTS CONTRIBUTE TO ACADEMIC KNOWLEDGE, INDUSTRIAL INNOVATION, AND SOCIETAL DEVELOPMENT.

### ARTIFICIAL INTELLIGENCE AND MACHINE LEARNING

MANY FACULTY MEMBERS SPECIALIZE IN AI AND MACHINE LEARNING, DEVELOPING ALGORITHMS AND MODELS FOR APPLICATIONS SUCH AS NATURAL LANGUAGE PROCESSING, AUTONOMOUS SYSTEMS, AND PREDICTIVE ANALYTICS. THEIR WORK OFTEN INVOLVES COLLABORATIONS WITH INDUSTRY PARTNERS TO APPLY AI SOLUTIONS IN REAL-WORLD CONTEXTS.

### CYBERSECURITY AND PRIVACY

RESEARCH IN CYBERSECURITY FOCUSES ON PROTECTING DIGITAL INFRASTRUCTURES, DEVELOPING CRYPTOGRAPHIC TECHNIQUES, AND ENSURING DATA PRIVACY. FACULTY EXPERTISE IN THIS AREA SUPPORTS NATIONAL SECURITY INITIATIVES AND THE DEVELOPMENT OF SECURE COMMUNICATION PROTOCOLS.

### DATA SCIENCE AND BIG DATA ANALYTICS

THE FACULTY CONDUCTS CUTTING-EDGE RESEARCH IN HANDLING LARGE DATASETS, EXTRACTING MEANINGFUL INSIGHTS, AND

BUILDING SCALABLE DATA PROCESSING FRAMEWORKS. THIS SPECIALIZATION IS CRITICAL FOR SECTORS LIKE HEALTHCARE, FINANCE, AND E-COMMERCE, WHERE DATA-DRIVEN DECISION-MAKING IS VITAL.

## FACULTY ACHIEVEMENTS AND CONTRIBUTIONS

THE IIT GUWAHATI COMPUTER SCIENCE FACULTY HAS ACHIEVED SIGNIFICANT RECOGNITION FOR THEIR SCHOLARLY WORK AND SOCIETAL IMPACT. THEY HAVE PUBLISHED EXTENSIVELY IN TOP-TIER JOURNALS AND CONFERENCES AND HAVE BEEN RECIPIENTS OF PRESTIGIOUS AWARDS AND GRANTS. THEIR CONTRIBUTIONS EXTEND BEYOND ACADEMIA INTO POLICY FORMULATION, TECHNOLOGY STARTUPS, AND PUBLIC OUTREACH PROGRAMS.

## NOTABLE AWARDS AND HONORS

SEVERAL FACULTY MEMBERS HAVE BEEN HONORED WITH NATIONAL AWARDS SUCH AS THE SHANTI SWARUP BHATNAGAR PRIZE, FELLOWSHIPS IN THE INDIAN NATIONAL SCIENCE ACADEMY, AND BEST PAPER AWARDS AT INTERNATIONAL CONFERENCES. THESE ACCOLADES UNDERSCORE THE FACULTY'S LEADERSHIP IN COMPUTER SCIENCE RESEARCH.

## PATENTS AND INDUSTRY INNOVATIONS

IN ADDITION TO ACADEMIC PUBLICATIONS, THE FACULTY HAS FILED PATENTS RELATED TO SOFTWARE SYSTEMS, AI APPLICATIONS, AND CYBERSECURITY TECHNOLOGIES. THESE INNOVATIONS DEMONSTRATE THE PRACTICAL IMPACT OF THEIR RESEARCH AND CONTRIBUTE TO TECHNOLOGY TRANSFER AND COMMERCIALIZATION EFFORTS.

## TEACHING AND MENTORSHIP

THE IIT GUWAHATI COMPUTER SCIENCE FACULTY IS DEEPLY COMMITTED TO DELIVERING HIGH-QUALITY EDUCATION AND MENTORING STUDENTS AT UNDERGRADUATE, POSTGRADUATE, AND DOCTORAL LEVELS. THE CURRICULUM IS REGULARLY UPDATED TO INCORPORATE EMERGING TECHNOLOGIES AND RESEARCH FINDINGS, ENSURING STUDENTS RECEIVE CONTEMPORARY AND COMPREHENSIVE TRAINING.

## COURSE OFFERINGS

THE FACULTY MEMBERS DESIGN AND TEACH A WIDE ARRAY OF COURSES COVERING FUNDAMENTAL TOPICS AND ADVANCED SPECIALIZATIONS, INCLUDING:

- DATA STRUCTURES AND ALGORITHMS
- MACHINE LEARNING AND AI
- OPERATING SYSTEMS
- COMPUTER NETWORKS
- DATABASE SYSTEMS
- CYBERSECURITY PRINCIPLES

## STUDENT MENTORSHIP AND RESEARCH GUIDANCE

FACULTY MEMBERS ACTIVELY MENTOR STUDENTS ON RESEARCH PROJECTS, INTERNSHIPS, AND CAREER DEVELOPMENT. THEIR GUIDANCE FACILITATES STUDENT PARTICIPATION IN NATIONAL AND INTERNATIONAL COMPETITIONS, FOSTERING AN ENVIRONMENT OF ACADEMIC EXCELLENCE AND INNOVATION.

## COLLABORATIONS AND INDUSTRY ENGAGEMENT

THE IIT GUWAHATI COMPUTER SCIENCE FACULTY MAINTAINS STRONG TIES WITH VARIOUS INDUSTRIES, RESEARCH ORGANIZATIONS, AND GOVERNMENT AGENCIES. THESE COLLABORATIONS ENHANCE RESEARCH RELEVANCE, PROVIDE INTERNSHIP OPPORTUNITIES, AND PROMOTE TECHNOLOGY TRANSFER.

### INDUSTRY PARTNERSHIPS

COLLABORATIONS WITH LEADING TECH COMPANIES ENABLE FACULTY TO WORK ON APPLIED RESEARCH PROJECTS THAT ADDRESS REAL-WORLD CHALLENGES. THESE PARTNERSHIPS ALSO SUPPORT GUEST LECTURES, WORKSHOPS, AND STUDENT PLACEMENTS, BRIDGING ACADEMIA AND INDUSTRY.

### INTERNATIONAL COLLABORATIONS

FACULTY MEMBERS ENGAGE IN JOINT RESEARCH INITIATIVES AND ACADEMIC EXCHANGES WITH INTERNATIONAL UNIVERSITIES, EXPANDING THE GLOBAL FOOTPRINT OF IIT GUWAHATI'S COMPUTER SCIENCE DEPARTMENT. SUCH COLLABORATIONS CONTRIBUTE TO KNOWLEDGE SHARING AND CROSS-CULTURAL ACADEMIC ENRICHMENT.

## FACILITIES AND RESEARCH INFRASTRUCTURE

THE IIT GUWAHATI COMPUTER SCIENCE FACULTY BENEFITS FROM STATE-OF-THE-ART RESEARCH FACILITIES AND LABORATORIES EQUIPPED WITH ADVANCED COMPUTING RESOURCES. THESE INFRASTRUCTURE ELEMENTS SUPPORT HIGH-IMPACT RESEARCH AND FOSTER INNOVATION.

### RESEARCH LABORATORIES

SPECIALIZED LABS FOCUS ON AREAS SUCH AS AI, CYBERSECURITY, NETWORKING, AND DATA ANALYTICS. THESE LABS ENABLE FACULTY AND STUDENTS TO CONDUCT EXPERIMENTS, DEVELOP PROTOTYPES, AND TEST NEW TECHNOLOGIES UNDER EXPERT SUPERVISION.

### COMPUTING RESOURCES

THE DEPARTMENT OFFERS ACCESS TO HIGH-PERFORMANCE COMPUTING CLUSTERS, CLOUD PLATFORMS, AND SOFTWARE TOOLS ESSENTIAL FOR MODERN COMPUTER SCIENCE RESEARCH. THIS INFRASTRUCTURE ENHANCES THE FACULTY'S ABILITY TO UNDERTAKE COMPLEX COMPUTATIONAL PROJECTS.

## FREQUENTLY ASKED QUESTIONS

## WHO IS THE CURRENT HEAD OF THE COMPUTER SCIENCE AND ENGINEERING DEPARTMENT AT IIT GUWAHATI?

AS OF 2024, THE HEAD OF THE COMPUTER SCIENCE AND ENGINEERING DEPARTMENT AT IIT GUWAHATI IS PROFESSOR PRADIPTA BANERJI. PLEASE CHECK THE OFFICIAL IIT GUWAHATI WEBSITE FOR THE MOST UPDATED INFORMATION.

## WHAT ARE THE MAIN RESEARCH AREAS OF THE COMPUTER SCIENCE FACULTY AT IIT GUWAHATI?

THE COMPUTER SCIENCE FACULTY AT IIT GUWAHATI SPECIALIZE IN DIVERSE RESEARCH AREAS INCLUDING ARTIFICIAL INTELLIGENCE, MACHINE LEARNING, DATA SCIENCE, COMPUTER VISION, NATURAL LANGUAGE PROCESSING, CYBERSECURITY, NETWORKS, EMBEDDED SYSTEMS, AND THEORETICAL COMPUTER SCIENCE.

## HOW CAN I CONTACT THE COMPUTER SCIENCE FACULTY MEMBERS AT IIT GUWAHATI?

YOU CAN CONTACT THE COMPUTER SCIENCE FACULTY MEMBERS THROUGH THEIR OFFICIAL EMAIL ADDRESSES LISTED ON THE IIT GUWAHATI COMPUTER SCIENCE AND ENGINEERING DEPARTMENT WEBSITE OR THROUGH THE INSTITUTE'S FACULTY DIRECTORY.

## ARE THERE ANY NOTABLE AWARDS OR RECOGNITIONS RECEIVED BY IIT GUWAHATI COMPUTER SCIENCE FACULTY?

YES, SEVERAL FACULTY MEMBERS OF THE COMPUTER SCIENCE DEPARTMENT AT IIT GUWAHATI HAVE RECEIVED PRESTIGIOUS AWARDS SUCH AS THE SHANTI SWARUP BHATNAGAR PRIZE, DST INSPIRE FACULTY AWARD, AND FELLOWSHIPS FROM IEEE, ACM, AND OTHER PROFESSIONAL BODIES.

## DOES IIT GUWAHATI COMPUTER SCIENCE FACULTY COLLABORATE WITH INDUSTRY OR OTHER INSTITUTIONS?

YES, THE COMPUTER SCIENCE FACULTY AT IIT GUWAHATI ACTIVELY COLLABORATE WITH LEADING INDUSTRY PARTNERS AND ACADEMIC INSTITUTIONS GLOBALLY FOR RESEARCH PROJECTS, INTERNSHIPS, AND TECHNOLOGY DEVELOPMENT.

## WHAT IS THE FACULTY TO STUDENT RATIO IN THE COMPUTER SCIENCE DEPARTMENT AT IIT GUWAHATI?

THE FACULTY TO STUDENT RATIO IN THE COMPUTER SCIENCE DEPARTMENT AT IIT GUWAHATI TYPICALLY RANGES AROUND 1:10 TO 1:15, ENSURING PERSONALIZED ATTENTION AND MENTORSHIP FOR STUDENTS.

## WHERE CAN I FIND THE PROFILES AND PUBLICATIONS OF THE IIT GUWAHATI COMPUTER SCIENCE FACULTY?

FACULTY PROFILES AND THEIR PUBLICATIONS CAN BE FOUND ON THE OFFICIAL IIT GUWAHATI COMPUTER SCIENCE AND ENGINEERING DEPARTMENT WEBSITE, AS WELL AS ACADEMIC PLATFORMS LIKE GOOGLE SCHOLAR AND RESEARCHGATE LINKED FROM THEIR PROFILES.

## ADDITIONAL RESOURCES

### 1. *FOUNDATIONS OF ALGORITHMS BY IIT GUWAHATI FACULTY*

THIS BOOK OFFERS A COMPREHENSIVE INTRODUCTION TO FUNDAMENTAL ALGORITHMS, AUTHORED BY PROFESSORS FROM IIT GUWAHATI'S COMPUTER SCIENCE DEPARTMENT. IT COVERS ALGORITHM DESIGN TECHNIQUES, COMPLEXITY ANALYSIS, AND REAL-WORLD APPLICATIONS, MAKING IT SUITABLE FOR BOTH UNDERGRADUATE AND GRADUATE STUDENTS. THE TEXT IS ENRICHED WITH EXAMPLES AND EXERCISES TO REINFORCE LEARNING.

## 2. DATA STRUCTURES AND PROGRAMMING PARADIGMS

WRITTEN BY IIT GUWAHATI COMPUTER SCIENCE EXPERTS, THIS BOOK DELVES INTO ESSENTIAL DATA STRUCTURES AND VARIOUS PROGRAMMING PARADIGMS INCLUDING PROCEDURAL, OBJECT-ORIENTED, AND FUNCTIONAL PROGRAMMING. IT AIMS TO BUILD A STRONG CONCEPTUAL FOUNDATION AND PRACTICAL SKILLS NECESSARY FOR SOFTWARE DEVELOPMENT AND RESEARCH.

## 3. MACHINE LEARNING: PRINCIPLES AND TECHNIQUES

THIS TITLE EXPLORES THE CORE PRINCIPLES AND METHODOLOGIES OF MACHINE LEARNING, AUTHORED BY FACULTY SPECIALIZING IN ARTIFICIAL INTELLIGENCE AT IIT GUWAHATI. IT COVERS SUPERVISED, UNSUPERVISED, AND REINFORCEMENT LEARNING, ALONG WITH REAL-WORLD CASE STUDIES AND PROGRAMMING EXAMPLES TO FACILITATE HANDS-ON UNDERSTANDING.

## 4. ADVANCED COMPUTER NETWORKS: CONCEPTS AND PROTOCOLS

AUTHORED BY IIT GUWAHATI'S NETWORKING SPECIALISTS, THIS BOOK PROVIDES AN IN-DEPTH STUDY OF COMPUTER NETWORKS, INCLUDING PROTOCOL DESIGN, NETWORK ARCHITECTURE, AND SECURITY MECHANISMS. IT BALANCES THEORETICAL CONCEPTS WITH PRACTICAL INSIGHTS, MAKING IT AN IDEAL RESOURCE FOR STUDENTS AND PROFESSIONALS ALIKE.

## 5. INTRODUCTION TO CYBERSECURITY AND CRYPTOGRAPHY

THIS BOOK INTRODUCES FUNDAMENTAL CONCEPTS IN CYBERSECURITY AND CRYPTOGRAPHY, DEVELOPED BY IIT GUWAHATI'S COMPUTER SCIENCE FACULTY. IT EXPLAINS ENCRYPTION TECHNIQUES, SECURITY PROTOCOLS, AND THREAT MITIGATION STRATEGIES, AIMING TO EQUIP READERS WITH THE KNOWLEDGE TO SAFEGUARD DIGITAL INFORMATION.

## 6. COMPUTATIONAL GEOMETRY AND ITS APPLICATIONS

FOCUSED ON COMPUTATIONAL GEOMETRY, THIS BOOK AUTHORED BY IIT GUWAHATI PROFESSORS COVERS ALGORITHMS AND DATA STRUCTURES USED TO SOLVE GEOMETRIC PROBLEMS. IT INCLUDES APPLICATIONS IN COMPUTER GRAPHICS, ROBOTICS, AND GEOGRAPHIC INFORMATION SYSTEMS, WITH DETAILED PROOFS AND ILLUSTRATIVE EXAMPLES.

## 7. ARTIFICIAL INTELLIGENCE: CONCEPTS AND APPLICATIONS

THIS COMPREHENSIVE GUIDE, AUTHORED BY AI RESEARCHERS AT IIT GUWAHATI, EXAMINES THE THEORIES AND APPLICATIONS OF ARTIFICIAL INTELLIGENCE. TOPICS INCLUDE KNOWLEDGE REPRESENTATION, REASONING, NATURAL LANGUAGE PROCESSING, AND ROBOTICS, SUPPORTED BY PRACTICAL EXERCISES AND CASE STUDIES.

## 8. SOFTWARE ENGINEERING: PRINCIPLES AND PRACTICE

WRITTEN BY EXPERIENCED IIT GUWAHATI FACULTY, THIS BOOK COVERS THE SOFTWARE DEVELOPMENT LIFECYCLE, METHODOLOGIES, AND PROJECT MANAGEMENT TECHNIQUES. IT EMPHASIZES QUALITY ASSURANCE, DESIGN PATTERNS, AND AGILE PRACTICES, PREPARING STUDENTS FOR REAL-WORLD SOFTWARE ENGINEERING CHALLENGES.

## 9. BIG DATA ANALYTICS AND VISUALIZATION

THIS BOOK EXPLORES BIG DATA TECHNOLOGIES AND VISUALIZATION TECHNIQUES, CRAFTED BY EXPERTS FROM IIT GUWAHATI'S COMPUTER SCIENCE DEPARTMENT. IT DISCUSSES DATA PROCESSING FRAMEWORKS, ANALYTICAL METHODS, AND TOOLS TO INTERPRET LARGE-SCALE DATA, ENRICHED WITH PRACTICAL EXAMPLES AND CASE STUDIES.

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**iit guwahati computer science faculty:** *Multimedia Data Processing and Computing* Suman Kumar Swarnkar, J P Patra, Tien Anh Tran, Bharat Bhushan, Santosh Biswas, 2023-11-28 This book focuses on different applications of multimedia with supervised and unsupervised data engineering in the modern world. It includes AI-based soft computing and machine techniques in the field of medical diagnosis, biometrics, networking, manufacturing, data science, automation in electronics

industries, and many more relevant fields. Multimedia Data Processing and Computing provides a complete introduction to machine learning concepts, as well as practical guidance on how to use machine learning tools and techniques in real-world data engineering situations. It is divided into three sections. In this book on multimedia data engineering and machine learning, the reader will learn how to prepare inputs, interpret outputs, appraise discoveries, and employ algorithmic strategies that are at the heart of successful data mining. The chapters focus on the use of various machine learning algorithms, neural network algorithms, evolutionary techniques, fuzzy logic techniques, and deep learning techniques through projects, so that the reader can easily understand not only the concept of different algorithms but also the real-world implementation of the algorithms using IoT devices. The authors bring together concepts, ideas, paradigms, tools, methodologies, and strategies that span both supervised and unsupervised engineering, with a particular emphasis on multimedia data engineering. The authors also emphasize the need for developing a foundation of machine learning expertise in order to deal with a variety of real-world case studies in a variety of sectors such as biological communication systems, healthcare, security, finance, and economics, among others. Finally, the book also presents real-world case studies from machine learning ecosystems to demonstrate the necessary machine learning skills to become a successful practitioner. The primary users for the book include undergraduate and postgraduate students, researchers, academicians, specialists, and practitioners in computer science and engineering.

**iit guwahati computer science faculty: *Computer and Information Science*** Roger Lee, 2017-05-25 This book presents the edited proceedings of the 16th IEEE/ACIS International Conference on Computer and Information Science (ICIS 2017), which was held on May 24-26, 2017 in Wuhan, China. The aim of this conference was to bring together researchers and scientists, businessmen and entrepreneurs, teachers, engineers, computer users, and students to discuss the various fields of computer science, share their experiences and exchange new ideas and information. The research results included relate to all aspects (theory, applications and tools) of computer and information science, and discuss the practical challenges encountered and the solutions adopted to solve them. The work selected represents 17 of the most promising papers from the conference, written by authors who are certain to make further significant contributions to the field of computer and information science.

**iit guwahati computer science faculty: *Emerging Trends and Technologies on Intelligent Systems*** Arti Noor, Kriti Saroha, Emil Pricop, Abhijit Sen, Gaurav Trivedi, 2025-02-28 This book presents best selected papers presented at the 4th International Conference on Emerging Trends and Technologies on Intelligent Systems (ETTIS 2024) held from 27 to 28 March 2024 in hybrid mode at CDAC, Noida, India. The book includes current research works in the areas of artificial intelligence, big data, cyber-physical systems, and security in industrial/real-world settings. The book illustrates on-going research results, projects, surveying works, and industrial experiences that describe significant advances in all of the related areas.

**iit guwahati computer science faculty: *ECIW2006-Proceedings of the 5th European Conference on i-Warfare and Security*** Dr Dan Remenyi, 2006

**iit guwahati computer science faculty: *Privacy and Security Issues in Big Data*** Pradip Kumar Das, Hrudaya Kumar Tripathy, Shafiz Affendi Mohd Yusof, 2021-04-23 This book focuses on privacy and security concerns in big data and differentiates between privacy and security and privacy requirements in big data. It focuses on the results obtained after applying a systematic mapping study and implementation of security in the big data for utilizing in business under the establishment of "Business Intelligence". The chapters start with the definition of big data, discussions why security is used in business infrastructure and how the security can be improved. In this book, some of the data security and data protection techniques are focused and it presents the challenges and suggestions to meet the requirements of computing, communication and storage capabilities for data mining and analytics applications with large aggregate data in business.

**iit guwahati computer science faculty: *Design and Analysis of Algorithms*** Hari Prabhat Gupta, Rahul Mishra, 2025-06-01

**iit guwahati computer science faculty:** Emerging Trends in Engineering, Science and Technology for Society, Energy and Environment Rajesh Vanchipura, K.S. Jiji, 2018-08-06 The International Conference on Emerging Trends in Engineering, Science and Technology (ICETEST) was held at the Government Engineering College, Thrissur, Kerala, India, from 18th to 20th January 2018, with the theme, "Society, Energy and Environment", covering related topics in the areas of Civil Engineering, Mechanical Engineering, Electrical Engineering, Chemical Engineering, Electronics & Communication Engineering, Computer Science and Architecture. Conflict between energy and environment has been of global significance in recent years. Academic research needs to support the industry and society through socially and environmentally sustainable outcomes. ICETEST 2018 was organized with this specific objective. The conference provided a platform for researchers from different domains, to discuss and disseminate their findings. Outstanding speakers, faculties, and scholars from different parts of the world presented their research outcomes in modern technologies using sustainable technologies.

**iit guwahati computer science faculty:** *Distributed Systems* Ratan K. Ghosh, Hiranmay Ghosh, 2023-03-01 Distributed Systems Comprehensive textbook resource on distributed systems—integrates foundational topics with advanced topics of contemporary importance within the field Distributed Systems: Theory and Applications is organized around three layers of abstractions: networks, middleware tools, and application framework. It presents data consistency models suited for requirements of innovative distributed shared memory applications. The book also focuses on distributed processing of big data, representation of distributed knowledge and management of distributed intelligence via distributed agents. To aid in understanding how these concepts apply to real-world situations, the work presents a case study on building a P2P Integrated E-Learning system. Downloadable lecture slides are included to help professors and instructors convey key concepts to their students. Additional topics discussed in Distributed Systems: Theory and Applications include: Network issues and high-level communication tools Software tools for implementations of distributed middleware. Data sharing across distributed components through publish and subscribe-based message diffusion, gossip protocol, P2P architecture and distributed shared memory. Consensus, distributed coordination, and advanced middleware for building large distributed applications Distributed data and knowledge management Autonomy in distributed systems, multi-agent architecture Trust in distributed systems, distributed ledger, Blockchain and related technologies. Researchers, industry professionals, and students in the fields of science, technology, and medicine will be able to use Distributed Systems: Theory and Applications as a comprehensive textbook resource for understanding distributed systems, the specifics behind the modern elements which relate to them, and their practical applications.

**iit guwahati computer science faculty:** *Artificial Intelligence and Data Science Based R&D Interventions* Ratnajit Bhattacharjee, Debanga Raj Neog, Konda Reddy Mopuri, Santosh Kumar Vipparthi, 2023-09-04 This book title is a composition of multiple research efforts that are based on cutting-edge Artificial Intelligence (AI) techniques. Some of the signal processing problems are addressed with techniques from the broad areas of machine learning and deep learning.

**iit guwahati computer science faculty:** *Multimedia Transcoding in Mobile and Wireless Networks* Ahmad, Ashraf M.A., Khalil, Ismail, 2008-07-31 This book is designed to provide readers with relevant theoretical frameworks and latest technical and institutional solutions for transcoding multimedia in mobile and wireless networks--Provided by publisher.

**iit guwahati computer science faculty:** *Sixth International Conference on Information Technology* ,

**iit guwahati computer science faculty: Mechanical Sciences** Uday S. Dixit, Santosha Kumar Dwivedy, 2020-07-23 This book consists of review articles by experts on recent developments in mechanical engineering sciences. The book has been composed to commemorate the Silver Jubilee of the Mechanical Engineering Department, Indian Institute of Technology Guwahati. It includes articles on modern mechanical sciences subjects of advanced simulation techniques and molecular dynamics, microfluidics and microfluidic devices, energy systems, intelligent fabrication,

microscale manufacturing, smart materials, computational techniques, robotics and their allied fields. It presents the upcoming and emerging areas in mechanical sciences which will help in formulation of new courses and updating existing curricula. This book will help the academicians and policy makers in the field of engineering education to chart out the desired path for the development of technical education.

**iit guwahati computer science faculty:** *Advances in Security and Payment Methods for Mobile Commerce* Wen Chen Hu, Chung-Wei Lee, Weidong Kou, 2005-01-01 Recently, the emergence of wireless and mobile networks has made possible the admission of electronic commerce to a new application and research subject: mobile commerce, defined as the exchange or buying and selling of commodities, services, or information on the Internet through the use of mobile handheld devices. In just a few years, mobile commerce has emerged from nowhere to become the hottest new trend in business transactions. However, the prosperity and popularity of mobile commerce will be brought to a higher level only if information is securely and safely exchanged among end systems. This book includes high-quality research papers and industrial and practice articles in the areas of mobile commerce security and payment from academics and industrialists.

**iit guwahati computer science faculty:** *Sustainable Technology and Advanced Computing in Electrical Engineering* Vasundhara Mahajan, Anandita Chowdhury, Narayana Prasad Padhy, Fernando Lezama, 2022-11-02 The book includes peer-reviewed papers of the International Conference on Sustainable Technology and Advanced Computing in Electrical Engineering (ICSTACE 2021). The main focus of the book is electrical engineering. The conference aims to provide a global platform to the researchers for sharing and showcasing their discoveries/findings/innovations. The book focuses on the areas related to sustainable development and includes research works from academicians and industry experts. The book discusses new challenges and provides solutions at the interface of technology, information, complex systems, and future research directions.

**iit guwahati computer science faculty:** Engineering Science and Technology: Innovations for the Future Reeraja S. R., Bore Gowda, Y. S. Rammohan, Ganesan Prabu Sankar, G. Jayalatha, 2025-10-22 The International Conference on Recent Innovations in Engineering Science & Technology (ICRIET-2025), hosted by KSIT Bengaluru, brought together researchers and experts from around the world to present 225 peer reviewed papers across four engineering domains. With keynote sessions on AI, energy harvesting, and sustainable manufacturing, the conference promoted interdisciplinary dialogue and cutting-edge innovation. It served as a dynamic platform for academic exchange, fostering collaboration between academia and industry. ICRIET-2025 stands as a testament to KSIT's commitment to advancing research and technological progress.

**iit guwahati computer science faculty:** *Security and Privacy in Smart Sensor Networks* Maleh, Yassine, Ezzati, Abdellah, Belaisaoui, Mustapha, 2018-05-09 Security and privacy protection within computer networks can be a challenge. By examining the current problems and challenges this domain is facing, more efficient strategies can be established to safeguard personal information against invasive pressures. *Security and Privacy in Smart Sensor Networks* is a critical scholarly resource that examines recent developments and emerging trends in smart sensor security and privacy by providing new models, practical solutions, and technological advances related to security. Featuring coverage on a broad range of topics such as cloud security, encryption, and intrusion detection systems, this book is geared towards academicians, engineers, IT specialists, researchers, and students seeking current research on authentication and intrusion detection.

**iit guwahati computer science faculty:** *Unveiling Social Dynamics and Community Interaction in the Metaverse* Gupta, Brij, 2025-04-16 As the metaverse transforms social dynamics and community interactions, security becomes essential to fostering trust and meaningful engagement in virtual spaces. Protecting users from threats like identity theft, harassment, and misinformation is crucial to maintaining safe and inclusive digital communities. The intersection of security and social interaction influences how people form relationships, collaborate, and express themselves in virtual environments. Strong security frameworks help prevent exploitation while





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