

## Software Engineering By Rajib Mall

This open access book provides an overview of the dissertations of the five nominees for the Ernst Denert Award for Software Engineering in 2019. The prize, kindly sponsored by the Gerlind & Ernst Denert Stiftung, is awarded for excellent work within the discipline of Software Engineering, which includes methods, tools and procedures for better and efficient development of high quality software. An essential requirement for the nominated work is its applicability and usability in industrial practice. The book contains five papers describing the works by Sebastian Baltes (U Trier) on Software Developers' Work Habits and Expertise, Timo Greifenberg's thesis on Artefaktbasierte Analyse modellgetriebener Softwareentwicklungsprojekte, Marco Konersmann's (U Duisburg-Essen) work on Explicitly Integrated Architecture, Marija Selakovic's (TU Darmstadt) research about Actionable Program Analyses for Improving Software Performance, and Johannes Späth's (Paderborn U) thesis on Synchronized Pushdown Systems for Pointer and Data-Flow Analysis – which actually won the award. The chapters describe key findings of the respective works, show their relevance and applicability to practice and industrial software engineering projects, and provide additional information and findings that have only been discovered afterwards, e.g. when applying the results in industry. This way, the book is not only interesting to other researchers, but also to industrial software professionals who would like to learn about the application of state-of-the-art methods in their daily work.

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This new edition of the book, is restructured to trace the advancements made and landmarks achieved in software engineering. The text not only incorporates latest and enhanced software engineering techniques and practices, but also shows how these techniques are applied into the practical software assignments. The chapters are incorporated with illustrative examples to add an analytical insight on the subject. The book is logically organised to cover expanded and revised treatment of all software process activities. KEY FEATURES • Large number of worked-out examples and practice problems • Chapter-end exercises and solutions to selected problems to check students' comprehension on the subject • Solutions manual available for instructors who are confirmed adopters of the text • PowerPoint slides available online at [www.phindia.com/rajibmall](http://www.phindia.com/rajibmall) to provide integrated learning to the students NEW TO THE FIFTH EDITION • Several rewritten sections in almost every chapter to increase readability • New topics on latest developments, such as agile development using SCRUM, MC/DC testing, quality models, etc. • A large number of additional multiple choice questions and review questions in all the chapters help students to understand the important concepts TARGET AUDIENCE • BE/B.Tech (CS and IT) • BCA/MCA • M.Sc. (CS) • MBA

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This volume constitutes the refereed proceedings of the 4th International Conference on Information Systems, Technology and Management, ICISTM 2010, held in Bangkok, Thailand, in March 2010. The 28 revised full papers presented together with 3 keynote lectures, 9 short papers, and 2 tutorial papers were carefully reviewed and selected from 86 submissions. The papers are organized in topical sections on information systems, information technology, information management, and applications.

This highly structured text, in its second edition, provides comprehensive coverage of design techniques of algorithms. It traces the complete development of various algorithms in a stepwise approach followed by their pseudo-codes to build an understanding of their applications in practice. With clear explanations, the textbook intends to be much more comprehensive book on design and analysis of algorithm. Commencing with the introduction, the book gives a detailed account of graphs and data structure. It then elaborately discusses the matrix algorithms, basic algorithms, network algorithms, sorting algorithm, backtracking algorithms and search algorithms. The text also focuses on the heuristics, dynamic programming and meta heuristics. The concepts of cryptography and probabilistic algorithms have been described in detail. Finally, the book brings out the underlying concepts of benchmarking of algorithms, algorithms to schedule processor(s) and complexity of algorithms. New to the second Edition New chapters on • Matrix algorithms • Basic algorithms • Backtracking algorithms • Complexity of algorithms Several new sections including asymptotic notation, amortized analysis, recurrences, balanced trees, skip list, disjoint sets, maximal flow algorithm, parsort, radix sort, selection sort, topological sorting/ordering, median and ordered statistics, Huffman coding algorithm, transportation problem, heuristics for scheduling, etc., have been incorporated into the text.

Evolutionary computation has emerged as a major topic in the scientific community as many of its techniques have successfully been applied to solve problems in a wide variety of fields. Modeling Applications and Theoretical Innovations in Interdisciplinary Evolutionary Computation provides comprehensive research on emerging theories and its aspects on intelligent computation. Particularly focusing on breaking trends in evolutionary computing, algorithms, and programming, this publication serves to support professionals, government employees, policy and decision makers, as well as students in this scientific field.

Programming has become a significant part of connecting theoretical development and scientific application computation. Computer programs and processes that take into account the goals and needs of the user meet with the greatest success, so it behooves software engineers to consider the human element inherent in every line of code they write. Research Anthology on Recent Trends, Tools, and Implications of Computer Programming is a vital reference

source that examines the latest scholarly material on trends, techniques, and uses of various programming applications and examines the benefits and challenges of these computational developments. Highlighting a range of topics such as coding standards, software engineering, and computer systems development, this multi-volume book is ideally designed for programmers, computer scientists, software developers, analysts, security experts, IoT software programmers, computer and software engineers, students, professionals, and researchers.

FUNDAMENTALS OF SOFTWARE ENGINEERING, FIFTH EDITION PHI Learning Pvt. Ltd.

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Each and every chapter covers the contents up to a reasonable depth necessary for the intended readers in the field. The book consists in all about 1200 exercises based on the topics and sub-topics covered. Keeping in view the emerging trends in newly emerging scenario with new dimension of software engineering, the book specially includes the following chapters, but not limited to these only. This book explains all the notions related to software engineering in a very systematic way, which is of utmost importance to the novice readers in the field of software Engineering.

Due to the role of software systems in safety-critical applications and in the satisfaction of customers and organizations, the development of efficient software engineering is essential. Designing, Engineering, and Analyzing Reliable and Efficient Software discusses and analyzes various designs, systems, and advancements in software engineering. With its coverage on the integration of mathematics, computer science, and practices in engineering, this book highlights the importance of ensuring and maintaining reliable software and is an essential resource for practitioners, professors and students in these fields of study.

ICIEMS 2013 is to provide a platform for researchers, engineers, academicians as well as industrial professionals from all over the world to present their research results and development activities in Industrial Engineering and Management Science. This conference provides opportunities for the delegates to exchange new ideas and experiences face to face, to establish business or research relations and to find global partners for future collaboration.

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This well organized text provides the design techniques of algorithms in a simple and straight forward manner. It describes the complete development of various algorithms along with their pseudo-codes in order to have an understanding of their applications. The book begins with a description of the fundamental concepts and basic design techniques of algorithms. Gradually, it introduces more complex and advanced topics such as dynamic programming, backtracking and various algorithms related to graph data structure. Finally, the text elaborates on NP-hard, matrix operations and sorting network. Primarily designed as a text for undergraduate students of Computer Science and Engineering and Information Technology (B.Tech., Computer Science, B.Tech. IT) and postgraduate students of Computer Applications (MCA), the book would also be quite useful to postgraduate students of Computer Science and IT (M.Sc., Computer

Science; M.Sc., IT). New to this Second Edition 1. A new section on Characteristics of Algorithms (Section 1.3) has been added 2. Five new sections on Insertion Sort (Section 2.2), Bubble Sort (Section 2.3), Selection Sort (Section 2.4), Shell Sort/Diminishing Increment Sort/Comb Sort (Section 2.5) and Merge Sort (Section 2.6) have been included 3. A new chapter on Divide and Conquer (Chapter 5) has also been incorporated

This unique volume presents the scientific achievements, significant discoveries and pioneering contributions of various academicians, industrialist and research scholars. The book is an essential source of reference and provides a comprehensive overview of the author's work in the field of mathematics, statistics and computer science.

Contents: Databased Intrinsic Weights of Indicators of Multi-Indicator Systems and Performance Measures of Multivariate Rankings of Systemic Objects (G P Patil & S W Joshi) Statistical Aspects of SuDoKu-Based Experimental Designs (Jyotirmoy Sarkar & Bikas K Sinha) Multi Criteria Decision Making Model for Optimal Selection of Recovery Facility Location and Collection Routes for a Sustainable Reverse Logistics Network under Fuzzy Environment (J D Darbari, V Agarwal & P C Jha) Optimal allocation of SKU and Safety Stock in Supply Chain System Network (K Gandhi, K Goyal, A Jha & J D Darbari) Bi-Objective Optimization Model for Fault-Tolerant Embedded Systems Under Build-Or-Buy Strategy Incorporating Recovery Block Scheme (R Kaur, S Arora, P C Jha & S Madan) Study of a Problem of Annular Cylinder Under Two-Temperature Thermoelasticity with Thermal Relaxation Parameters (Santwana Mukhopadhyay & Roushan Kumar) Multi-Criteria Advertisement Allocation Model of Multiple Advertisers on a Television Network (G Kaur, S Aggarwal & P C Jha) Computation of Maximum Likelihood Estimates in Three Parameter Weibull for Censored Data (Sanjeeva Kumar Jha) On Statistical Quality Control Techniques Based on Ranked Set Sampling (Md Sarwar Alamand, Arun Kumar Sinha & Rahbar Ali) Approximate Solution for Nonlinear Oscillator with Cubic and Quintic Nonlinearities (Jitendra Singh) Fuzzy DEA Cross-Efficiency Model for Ranking and Performance Evaluation Using Ideal and Anti-Ideal Decision Making Units (Seema Gupta, K N Rajeshwari & P C Jha) Poverty Analysis Using Scan Statistic Methods (Arun Kumar Sinha & Mukesh Kumar) Joint Performance Evaluation Data Envelopment Analysis Problem: An Interactive Approach (Riju Chaudhary, Pankaj Kumar Garg & P C Jha) Stochastic Modeling of a Repairable System Under Different Weather Conditions (S C Malik) Estimation of Risk Surfaces and Identification of District Boundaries for Tuberculosis in North-Eastern Indian States (Sanjeeva Kumar Jha & Ningthoukhongjam Vikimchandra Singh) Optimal Advertisement Allocation for Product Promotion on Television Channels (A Kaul, S Aggarwal, P C Jha & A Gupta) Fitting Linear Regressions: Development and Scope (Pranesh Kumar & J N Singh) The Impact of Family Planning on Fertility in Jharkhand State (Dilip Kumar) Spatial Analysis of AFP Surveillance Strategy for Polio Eradication in India (Pankaj Srivastava & Arun Kumar Sinha) On the Stochastic Modeling and Analysis of Bloom Caster System of Continuous Casting Shop Area of an Integrated Steel Plant (S K Singh) A Generalized Exponential-Lindley Distribution (A Mishra & Binod Kumar Sah) On Estimating the Urban Populations Using Minimum Information (Arun Kumar Sinha, Vijay Kumar & Ravi B P Verma) Fitting of Some Statistical Distributions of Daily Precipitation Data on North West India (NWI) Regions (Ranjan Kumar Sahoo) On Systematic Sampling Strategies for a Varying Sample Size (K B Panda) Estimation of

Measurement Variance Under Two-Stage Sampling: Estimation of Population Mean (Pulakesh Maiti)  
The Interior-Point Revolution in Mathematical Programming and its Place in Applied Mathematics (J N Singh)  
Combined Exponential Type Estimators of Population Mean in Stratified Random Sampling (R Pandey, K Yadav & N S Thakur)  
An Analytical Study on Fractional Fokker-Planck Equation by Homotopy Analysis Transform Method (Jitendra Singh & Rajeev Kumar)  
L-Primitive Words in Submonoids of a Free Monoid (Shubh Narayan Singh & K V Krishna)  
Comparison of the Performance of Ranked Set Sampling with the Linear Regression Estimation (Rahbar Ali & Arun Kumar Sinha)  
Optimal Selection of Logistics Operating Channels for a Sustainable Reverse Supply Chain (Vernika Agarwal, Jyoti Dhingra Darbari & P C Jha)  
Reliability Measures of a Parallel-Unit System with Arbitrary Distributions of Random Variables (Jitender Kumar, M S Kadyan & S C Malik)  
Adoption and Evolution of FOSS: Key Factors in the Development of the Apache Web Server (Ranjan Kumar, Subhash Kumar & Sukanta Deb)  
Android/Tizen Based Artificial Intelligence Techniques for Prognosis and Diagnosis of Electrical Machines (K V Satya Bharath, Sheikh Suhail Muhammad & Priya Ranjan)  
Performance Analysis of Quality of Service for Different Service Classes in WiMAX Network (Jokhu Lal & Neeraj Tyagi)  
A Review of Application of Artificial Neural Network in Ground Water Modeling (Neeta Kumari, Gopal Pathak & Om Prakash)  
Density Based Outlier Detection (DBOD) in Data Mining: A Novel Approach (Govind Kumar Jha, Neeraj Kumar, Prabhat Ranjan & K G Sharma)  
Enhanced Velocity BPSO and Convergence Analysis on Dimensionality Reduction (Shikha Agarwal, R Rajesh & Prabhat Ranjan)  
Modification of the Android Operating System to Predict the Human Body Temperature Using Capacitive Touch (Shubhnkar Upadhyay, Avadhesh Singh, Kumar Abhishek & M P Singh)  
Context-Aware Based Clustering in Wireless Sensor Networks — A Survey (Santu Paul, M P Singh, J P Singh & Prabhat Kumar)  
Speech Emotion Recognition Using Vowel Onset and Offset Points (Manish Kumar & Jainath Yadav)  
A Novel Algorithm for Magic Squares (Govind Kumar Jha, Neeraj Kumar, Prabhat Ranjan & A P Shakya)  
A Note on Intelligent Street Light System (J Satheesh Kumar & C G Sreekaviya)  
An Overview of Test Case Optimization Using Meta-Heuristic Approach (Sushant Kumar, Prabhat Ranjan & R Rajesh)  
Smart City Traffic Management and Surveillance System for Indian Scenario (Tarun Kumar, Rohit Kumar Sachan & Dharmender Singh Kushwaha)  
Improving Attribute Inference Attack Using Link Prediction in Online Social Networks (Ashish Kumar & N C Rathore)  
A Dynamic Model on Computer Virus (Upendra Kumar)  
State of the Art In-Service Condition Monitoring Techniques of Rotary Machines (Krishna Kant Agrawal, Shekhar Verma & G N Pandey)  
Image Segmentation: A survey (K M Pooja & R Rajesh)  
Empirical Reliability Modeling of Transaction Oriented Autonomic Grid Service (Dharmendra Prasad Mahato & Ravi Shankar Singh)  
Performance Degradation of Language Identification System in Noisy Environment (Randheer Bagi & Jainath Yadav)  
Analysis of Software Fault Detection and Correction Processes with Log-Logistic Testing-Effort (Md Zafar Imam, Ishrat Jahan Ara & N Ahmad)  
Skewness Removal of LEACH Protocol for Wireless Sensor Networks (Vishal Gupta & M N Doja)  
A Novel Approach for Fast Handoff in WLAN (Mithilesh Patel, Bhavna Singh, Sonam Gupta, Anurag Jajoo & Pavan Kumar Mishra)  
Facial Expression Recognition Using Histogram of Oriented Gradients (Jyoti Kumari & R Rajesh)  
Cloud Computing: Comparative Study Own Server vs Cloud Server (Surendra Kumar Singh)  
Mobile and GIS Framework for

Plantations and Nursery (E-Plantations) (Shailesh Kumar Shrivastava & S K Mahendran)Internet Traffic Classification: A Survey (Gargi Srivastava, M P Singh, Prabhat Kumar & J P Singh)Comprehensive Study of Search Engine (Sarowar Kumar, Kumar Abhishek, Abhay Kumar & M P Singh)A Survey on Social Networks: Issues and Attacks (Anubha Maurya & M P Singh)Reduced Rule for Banknote Genuinity (Chhotu Kumar & Anil Kumar Dudyala)A Study on Medical Diagnosis Based on Inter Valued Fuzzy Cluster Analysis (Bhagwan Sahay Meena & Sharmila Bhattacharjee) Readership: Undergraduate students, graduate students and researchers in mathematics, computer science and statistics.

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The second edition of this book provides a comprehensive introduction to a consortium of technologies underlying soft computing, an evolving branch of computational intelligence, which in recent years, has turned synonymous to it. The constituent technologies discussed comprise neural network (NN), fuzzy system (FS), evolutionary algorithm (EA), and a number of hybrid systems, which include classes such as neuro-fuzzy, evolutionary-fuzzy, and neuro-evolutionary systems. The hybridization of the technologies is demonstrated on architectures such as fuzzy backpropagation network (NN-FS hybrid), genetic algorithm-based backpropagation network (NN-EA hybrid), simplified fuzzy ARTMAP (NN-FS hybrid), fuzzy associative memory (NN-FS hybrid), fuzzy logic controlled genetic algorithm (EA-FS hybrid) and evolutionary extreme learning machine (NN-EA hybrid) Every architecture has been discussed in detail through illustrative examples and applications. The algorithms have been presented in pseudo-code with a step-by-step illustration of the same in problems. The applications, demonstrative of the potential of the architectures, have been chosen from diverse disciplines of science and engineering. This book, with a wealth of information that is clearly presented and illustrated by many examples and applications, is designed for use as a text for the courses in soft computing at both the senior undergraduate and first-year postgraduate levels of computer science and engineering. It should also be of interest to researchers and technologists desirous of applying soft computing technologies to their respective fields of work.

??????????Linux?????????????????,????????????????????????????????????,??????????Intel????????????? These are the proceedings of the Sixth International Conference on High Performance Computing (HiPC'99) held December 17-20 in Calcutta, India. The meeting serves as a forum for presenting current work by researchers from around the world as well as highlighting activities in Asia in the high performance computing area. The meeting emphasizes both the design and the analysis of high performance computing systems and their scientific, engineering, and commercial applications. Topics covered in the meeting series include: Parallel Algorithms Scientific Computation Parallel Architectures Visualization Parallel Languages & Compilers Network and Cluster Based Computing Distributed Systems Signal &

Image Processing Systems Programming Environments Supercomputing Applications Memory Systems Internet and WWW-based Computing Multimedia and High Speed Networks Scalable Servers We would like to thank Alfred Hofmann and Ruth Abraham of Springer-Verlag for their excellent support in bringing out the proceedings. The detailed messages from the steering committee chair, general co-chair and program chair pay tribute to numerous volunteers who helped us in organizing the meeting. October 1999 Viktor K. Prasanna Bhabani Sinha Prithviraj Banerjee Message from the Steering Chair It is my pleasure to welcome you to the Sixth International Conference on High Performance Computing. I hope you enjoy the meeting, the rich cultural heritage of Calcutta, as well as the mother Ganges, “the river of life”.

This textbook addresses the main topics associated with mobile computing and wireless networking at a level that enables the students to develop a fundamental understanding of the technical issues involved in this new and fast emerging discipline. The book first examines the basics of wireless technologies and computer communications that form the essential infrastructure required for building knowledge in the area of mobile computations involving the study of invocation mechanisms at the client end, the underlying wireless communication, and the corresponding server-side technologies. The book includes coverage of development of mobile cellular systems, protocol design for mobile networks, special issues involved in the mobility management of cellular system users, realization and applications of mobile ad hoc networks (MANETs), design and operation of sensor networks, special constraints and requirements of mobile operating systems, and development of mobile computing applications. Finally, an example application of the mobile computing infrastructure to M-commerce is described in the concluding chapter of the book. This book is suitable as an introductory text for a one-semester course in mobile computing for the undergraduate students of Computer Science and Engineering, Information Technology, Electronics and Communication Engineering, Master of Computer Applications (MCA), and the undergraduate and postgraduate science courses in computer science and Information Technology. **KEY FEATURES :** Provides unified coverage of mobile computing and communication aspects Discusses the mobile application development, mobile operating systems and mobile databases as part of the material devoted to mobile computing Incorporates a survey of mobile operating systems and the latest developments such as the Android operating system

IT industry offers lucrative job opportunities not only for the IT graduates but also for all those non-IT background students who thrive to build their career in this field. This book, now in its second edition, apprises the reader with every minute detail of the IT concepts and serves as a self-help guide for the graduates and students appearing for their placement tests and interviews in the final year. The book begins with the details of recruitment process and focuses on tackling difficult HR interview questions, resume building tips and provides sample resume which will equip the students for the interviews and hone their overall personality. The testimonials by the industry experts and academicians succinctly tell about the expectations of industry employers from the new recruits. The text in the middle chapters elaborates the programming concepts of C, C++ and Java as well as the concepts related to database, software engineering, operating systems, networking and DOT NET in great detail. The last chapter of the book presents a number of topics relating to general computer science aptitude. **NEW TO THE SECOND EDITION** • Numerous sections and examples have been included in chapters on OOP Concepts—Classes and Objects, Inheritance in C++, Polymorphism, Exception Handling and Templates in C++ and Operating System Concepts. • Completely revamped text in the chapter on Database Concepts. • Several MCQs from the latest interviews have now been incorporated into the respective chapters. • Five sample test papers with solutions are provided for practice. **KEY FEATURES** • Includes questions gathered from

the interviews conducted by companies such as Virtusa, TCS, IBM, DELL, HCL, Aon Hewitt, Convergys, CSC and Wipro. • Serves as a complete guide containing basic programming concepts helpful for non-IT background students as well. REVIEWER’S COMMENT It was a dream come true for me when I got placed in CISCO SYSTEMS with a package of 10.7 lakhs. I am immensely thankful to Ela Kashyap for writing such an amazing book. It has all the requisite information required to crack any interview, as it succinctly covers all the important topics one needs to know for IT interviews. The book has helped me to crack five rounds of interview. So, I would like to recommend this book to all the engineering students.

The presence and use of real-time systems is becoming increasingly common. Examples of such systems range from nuclear reactors, to automotive controllers, and also entertainment software such as games and graphics animation. The growing importance of rea.

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Today’s embedded devices and sensor networks are becoming more and more sophisticated, requiring more efficient and highly flexible compilers. Engineers are discovering that many of the compilers in use today are ill-suited to meet the demands of more advanced computer architectures. Updated to include the latest techniques, The Compiler Design Handbook, Second Edition offers a unique opportunity for designers and researchers to update their knowledge, refine their skills, and prepare for emerging innovations. The completely revised handbook includes 14 new chapters addressing topics such as worst case execution time estimation, garbage collection, and energy aware compilation. The editors take special care to consider the growing proliferation of embedded devices, as well as the need for efficient techniques to debug faulty code. New contributors provide additional insight to chapters on register allocation, software pipelining, instruction scheduling, and type systems. Written by top researchers and designers from around the world, The Compiler Design Handbook, Second Edition gives designers the opportunity to incorporate and develop innovative techniques for optimization and code generation.

Primarily designed as a text for undergraduate students of computer science and engineering and information technology, and postgraduate students of computer applications, the book would also be useful to postgraduate students of computer science and IT (M.Sc., Computer Science; M.Sc., IT). The objective of this book is to expose students to basic techniques in algorithm design and analysis. This well organized text provides the design techniques of algorithms in a simple and straightforward manner. Each concept is explained with an example that helps students to remember the algorithm devising techniques and analysis. The text describes the complete development of various algorithms along with their pseudo-codes in order to have an understanding of their applications. It also discusses the various design factors that make one algorithm more efficient than others, and explains how to devise the new algorithms or modify the existing



ones. Key Features Randomized and approximation algorithms are explained well to reinforce the understanding of the subject matter. Various methods for solving recurrences are well explained with examples. NP-completeness of various problems are proved with simple explanation.

This book contains proceedings of the International Conference on Advances in Computing, Control and Communication Technology (IAC3T) organized by Centre for Computer Education, Institute of Professional Studies, University of Allahabad during March 25-27, 2016 at Allahabad. A total of 138 full papers were submitted to the conference, out of which about 40 papers were accepted and finally 35 papers were presented during the conference. This book contains these papers. The conference was a major multidisciplinary conference organized with the objective to expose the participants to the emerging trends in the area of computing, control and communication technology. The conference intended to serve as a major international forum for the exchange of ideas and to provide an interactive platform to the students (budding engineers), engineers, researchers and academicians to exchange their innovative ideas and experiences in the area of advancements in computing, control and communication technology. The opening ceremony and pre-conference tutorials on various related topics were held on December 21. The technical program started on December 22 and continued for three days. The program was arranged in single track so as to enable participants to attend sessions of different tracks. Papers from the DM, IT, SE, and SS tracks were divided into two sessions, whereas DC track sessions were held on the first two days of the conference. The program also included two plenary talks. The first talk was delivered by S. S. Iyengar from Louisiana State University, USA. The second talk was delivered by He Jifeng from the International Institute for Software Technology (IIIST) Macau. Prof. Iyengar’s talk on “The Distributed Sensor Networks — An Emerging Technology” was focused on new ideas about the use of distributed systems for emerging technology, while Prof. Jifeng’s talk on “Linking Theories of Concurrency by Retraction” dealt with semantics of concurrency. All the conference committee members contributed towards the success of ICDCIT 2005. And it was a pleasant experience for me to work with them. The one name that sticks out is R. K. Ghosh, Steering Committee Chair. He really steered the group with his past experience as Program Chair of ICDCIT 2004.

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This volume focuses on current and future trends in the interplay between software engineering and artificial intelligence. This interplay is now critical to the success of both disciplines, and it also affects a wide range of subject areas. The articles in this volume survey the significant work that has been accomplished, describe the state of the art, analyze the current trends, and predict which future directions have the most potential for success. Areas covered include requirements engineering, real-time systems, reuse technology, development environments and meta-environments,

process representations, safety-critical systems, and metrics and measures for processes and products.

This book constitutes the refereed proceedings of the 20th International Conference on Innovations for Community Services, I4CS 2020, held in Bhubaneswar, India, in January, 2020. The 16 revised full papers presented in this volume were carefully reviewed and selected from 46 submissions. The papers focus on all aspects of: communities and social networks; information and system security; cloud and network security; communication and networks; and data analytics and e-governance.

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The aim of this book is to refresh you from software engineering fundamental concepts, basic day to day Definitions / Terminologies, Development Models, Encompassing Specifications, Function Oriented Modelling, Object Oriented Modelling, Dynamic Modelling, Analysis, Design, Coding, Testing, Implementation, Metrics, PERT Charts, Gantt Charts, Project Management, Software Configuration Management, Software Maintenance, Software Quality Assurance etc. You will utilize it during the period of learning and even after that. It will give the glimpse of array of questions and answers. It will induce the capacity and capability and confidence in you to do real life applications. It is hoped that you will drink the water not for you only but will provide to others. A job teaches us to obey while expertise and perfection are the result of our own efforts. Do practice with software paradigms (Structured Programming, Modular Programming, Objects Oriented Programming etc.) and measure the same to become Software Engineer.

The book contains the extended version of the works that have been presented and discussed in the Second International Doctoral Symposium on Applied Computation and Security Systems (ACSS 2015) held during May 23-25, 2015 in Kolkata, India. The symposium has been jointly organized by the AGH University of Science & Technology, Cracow, Poland; Ca' Foscari University, Venice, Italy and University of Calcutta, India. The book is divided into volumes and presents dissertation works in the areas of Image Processing, Biometrics-based Authentication, Soft Computing, Data Mining, Next Generation Networking and Network Security, Remote Healthcare, Communications, Embedded Systems, Software Engineering and Service Engineering.

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