

## Artificial Intelligence In Advance Manufacturing

This book discusses the latest advances in people-centered design, operation, and management of broadly defined advanced manufacturing systems and processes. It reports on human factors issues related to various research areas such as intelligent manufacturing technologies, web-based manufacturing services, digital manufacturing worlds, and manufacturing knowledge support systems, as well as other contemporary manufacturing environments. The book covers an extensive range of applications of human factors in the manufacturing industry: from work design, supply chains, evaluation of work systems, and social and organization design, to manufacturing systems, simulation and visualization, automation in manufacturing, and many others. Special emphasis is given to computer aided manufacturing technologies supporting enterprises, both in general and in the manufacturing industry in particular, such as knowledge-based systems, virtual reality, artificial intelligence methods, and many more. Based on the AHFE 2016 International Conference on Human Aspects of Advanced Manufacturing, held on July 27-31, 2016, in Walt Disney World®, Florida, USA, the book provides readers with a timely snapshot of the enterprises of the future and a set of cutting-edge technologies and methods for building innovative, human-centered, and computer-integrated manufacturing systems.

This book constitutes the refereed proceedings of the 29th Australasian Joint Conference on Artificial Intelligence, AI 2016, held in Hobart, TAS, Australia, in December 2016. The 40 full papers and 18 short papers presented together with 8 invited short papers were carefully reviewed and selected from 121 submissions. The papers are organized in topical sections on agents and multiagent systems; AI applications and innovations; big data; constraint satisfaction, search and optimisation; knowledge representation and reasoning; machine learning and data mining; social intelligence; and text mining and NLP. The proceedings also contains 2 contributions of the AI 2016 doctoral consortium and 6 contributions of the SMA 2016.

The Mexican International Conference on Artificial Intelligence (MICA) is aimed at promoting research in artificial intelligence (AI) and cooperation among Mexican researchers and their peers worldwide. MICA is organized by the Mexican Society for Artificial Intelligence (SMIA) in collaboration with the American Association for Artificial Intelligence (AAAI). After the success of the three previous biannual conferences, we are pleased to announce that MICA conferences are now annual, and we present the proceedings of the 4th Mexican International Conference on Artificial Intelligence, MICA 2005, held on November 14–18, 2005, in Monterrey, Mexico. This volume contains the papers included in the main conference program, which was complemented by tutorials, workshops, and poster sessions, published in supplementary proceedings. The proceedings of past MICA conferences were also published in Springer's Lecture Notes in Artificial Intelligence (LNAI) series, vols. 1793, 2313, and 2972. Table 1. Statistics of submissions and accepted papers by country/region

Country/Region	Subm	Accp	Subm	Accp
Algeria	2	0	66	–
Lithuania	3	1	5	0
Argentina	27	4	8	66
Malaysia	2	–	1	–
Australia	7	–	2	66
Mexico	383	139	131	91
Brazil	48	14	15	16
Netherlands	3	2	1	2
Bulgaria	1	1	0	5
New Zealand	4	4	1	1
Canada	13	4	4	75
Norway	4	1	2	33
Chile	14	10	6	4
Poland	8	2	3	1
China	288	65	107	33
Portugal	2	–	0	5
Colombia	1	–	1	–
Romania	2	2	0	5
Cuba	6	–	1	66
Russia	10	3	7	1

2019 International Conference on Artificial Intelligence and Advanced Manufacturing (AIAM)

This multi-volume directory which lists more than 35,000 companies is indexed by company name, geographic area, non-U.S. parent companies, technology, product code, CorpTech code, and SIC code. Profiles are provided for each company listed. This collection of 338 peer-reviewed papers, in a two-volume format, brings together the latest advances and applications of robotics, artificial intelligence, programmable controllers, lasers and other advanced processes, programmable assembly, flexible manufacturing systems, inspection; automatic test equipment, simulation, motors, controls and drives, local area networking, computer-integrated manufacturing, production planning and control, logistics and supply-chain management, human factors, and economics.

The proceedings brings together a selection of papers from the 7th International Workshop of Advanced Manufacturing and Automation (IWAMA 2017), held in Changshu Institute of Technology, Changshu, China on September 11–12, 2017. Most of the topics are focusing on novel techniques for manufacturing and automation in Industry 4.0. These contributions are vital for maintaining and improving economic development and quality of life. The proceeding will assist academic researchers and industrial engineers to implement the concepts and theories of Industry 4.0 in industrial practice, in order to effectively respond to the challenges posed by the 4th industrial revolution and smart factories. The contemporary world lives on the data produced at an unprecedented speed through social networks and the internet of things (IoT). Data has been called the new global currency, and its rise is transforming entire industries, providing a wealth of opportunities. Applied data science research is necessary to derive useful information from big data for the effective and efficient utilization to solve real-world problems. A broad analytical set allied with strong business logic is fundamental in today's corporations. Organizations work to obtain competitive advantage by analyzing the data produced within and outside their organizational limits to support their decision-making processes. This book aims to provide an overview of the concepts, tools, and techniques behind the fields of data science and artificial intelligence (AI) applied to business and industries. The Handbook of Research on Applied Data Science and Artificial Intelligence in Business and Industry discusses all stages of data science to AI and their application to real problems across industries—from science and engineering to academia and commerce. This book brings together practice and science to build successful data solutions, showing how to uncover hidden patterns and leverage them to improve all aspects of business performance by making sense of data from both web and offline environments. Covering topics including applied AI, consumer behavior analytics, and machine learning, this text is essential for data scientists, IT specialists, managers, executives, software and computer engineers, researchers, practitioners, academicians, and students. The era of the fourth industrial revolution has fundamentally transformed the manufacturing landscape. Products are getting increasingly complex and customers expect a higher level of customization and quality. Manufacturing in the Era of 4th Industrial Revolution explores three technologies that are the building blocks of the next-generation advanced manufacturing. The first technology covered in Volume 1 is Additive Manufacturing (AM). AM has emerged as a very

popular manufacturing process. The most common form of AM is referred to as 'three-dimensional (3D) printing'. Overall, the revolution of additive manufacturing has led to many opportunities in fabricating complex, customized, and novel products. As the number of printable materials increases and AM processes evolve, manufacturing capabilities for future engineering systems will expand rapidly, resulting in a completely new paradigm for solving a myriad of global problems. The second technology is industrial robots, which is covered in Volume 2 on Robotics. Traditionally, industrial robots have been used on mass production lines, where the same manufacturing operation is repeated many times. Recent advances in human-safe industrial robots present an opportunity for creating hybrid work cells, where humans and robots can collaborate in close physical proximities. This Cobots, or collaborative robots, has opened up to opportunity for humans and robots to work more closely together. Recent advances in artificial intelligence are striving to make industrial robots more agile, with the ability to adapt to changing environments and tasks. Additionally, recent advances in force and tactile sensing enable robots to be used in complex manufacturing tasks. These new capabilities are expanding the role of robotics in manufacturing operations and leading to significant growth in the industrial robotics area. The third technology covered in Volume 3 is augmented and virtual reality. Augmented and virtual reality (AR/VR) technologies are being leveraged by the manufacturing community to improve operations in a wide variety of ways. Traditional applications have included operator training and design visualization, with more recent applications including interactive design and manufacturing planning, human and robot interactions, ergonomic analysis, information and knowledge capture, and manufacturing simulation. The advent of low-cost solutions in these areas is accepted to accelerate the rate of adoption of these technologies in the manufacturing and related sectors. Consisting of chapters by leading experts in the world, *Manufacturing in the Era of 4th Industrial Revolution* provides a reference set for supporting graduate programs in the advanced manufacturing area.

This book constitutes the refereed proceedings of the 5th Mexican International Conference on Artificial Intelligence, MICAI 2006, held in Apizaco, Mexico in November 2006. It contains over 120 papers that address such topics as knowledge representation and reasoning, machine learning and feature selection, knowledge discovery, computer vision, image processing and image retrieval, robotics, as well as bioinformatics and medical applications.

This book discusses the latest advances in people-centered design, operation, and management of broadly defined advanced manufacturing systems and processes. It reports on human factors issues related to various research areas such as intelligent manufacturing technologies, web-based manufacturing services, digital manufacturing worlds, and manufacturing knowledge support systems, as well as other contemporary manufacturing environments. The book covers an extensive range of applications of human factors in the manufacturing industry: from work design, supply chains, evaluation of work systems, and social and organization design, to manufacturing systems, simulation and visualization, automation in manufacturing, and many others. Special emphasis is given to computer aided manufacturing technologies supporting enterprises, both in general and in the manufacturing industry in particular, such as knowledge-based systems, virtual reality, artificial intelligence methods, and many more. Based on the AHFE 2017 International Conference on Human Aspects of Advanced Manufacturing, held on July 17-21, 2017, in Los Angeles, California, USA, the book provides readers with a timely snapshot of the enterprises of the future and a set of cutting-edge technologies and methods for building innovative, human-centered, and computer-integrated manufacturing systems.

This book constitutes the proceedings of the XVIIIth International Conference of the Italian Association for Artificial Intelligence, AI\*IA 2019, held in Rende, Italy, in November 2019. The 41 full papers were carefully reviewed and selected from 67 submissions. The papers have been organized in the following topical sections: Knowledge Representation for AI, AI and Computation, Machine Learning for AI, and AI and Humans.

This book constitutes the refereed proceedings of the 14th International Conference of the Italian Association for Artificial Intelligence, A\*IA 2015, held in Ferrara, Italy, in September 2015. The 35 full papers presented were carefully reviewed and selected from 44 submissions. The papers are organized in topical sections on swarm intelligence and genetic algorithms; computer vision; multi-agents systems; knowledge representation and reasoning; machine learning; semantic Web; natural language; and scheduling, planning and robotics.

This book constitutes the refereed proceedings of the 15th Australian Joint Conference on Artificial Intelligence, AI 2002, held in Canberra, Australia in December 2002. The 62 revised full papers and 12 posters presented were carefully reviewed and selected from 117 submissions. The papers are organized in topical sections on natural language and information retrieval, knowledge representation and reasoning, deduction, learning theory, agents, intelligent systems. Bayesian reasoning and classification, evolutionary algorithms, neural networks, reinforcement learning, constraints and scheduling, neural network applications, satisfiability reasoning, machine learning applications, fuzzy reasoning, and case-based reasoning.

Manufacturing plays a vital role in European economy and society, and is expected to continue as a major generator of wealth in the foreseeable future. A competitive manufacturing industry is essential for the prosperity of Europe, especially in the face of accelerating deindustrialisation. This book provides a broad vision of the future of manufacturing, analysed from a system-management viewpoint and with a special focus on ICT-related matters. Each contribution presents a complex and multidisciplinary research domain from a specific perspective. The first part of the book gives an overview on technology: past, present and future, while the following topics are introduced in the latter part of the book: - Product Lifecycle Management - Sustainable Products and Processes - Production Scheduling and Control - Benchmarking and Performance Measures - Industrial Services - Human Factors and Education in Manufacturing - Collaborative Engineering - Supply Chain Integration The book is intended to provoke debate, build consensus and stimulate creative discussion, leading to further novel research initiatives in the future.

This book constitutes the proceedings of the 8th International Heinz Nixdorf Symposium, IHNS 2010, held in Paderborn,

Germany, April 21-22, 2010, under the title "Changing Paradigms: Advanced Manufacturing and Sustainable Logistics". The 27 full and two short papers presented in this book were carefully reviewed and selected from a total of 63 submissions. They are grouped in five parts on Supply Chain Management, Production Logistics and Industrial Engineering, Operations Research Techniques, Humanitarian Logistics, and Simulation. The presentation is completed by nine invited keynote papers from renowned international experts in these fields.

Artificial Intelligence Techniques for Networked Manufacturing Enterprises Management addresses prominent concepts and applications of AI technologies in the management of networked manufacturing enterprises. The aim of this book is to align latest practices, innovation and case studies with academic frameworks and theories, where AI techniques are used efficiently for networked manufacturing enterprises. More specifically, it includes the latest research results and projects at different levels addressing quick-response system, theoretical performance analysis, performance and capability demonstration. The role of emerging AI technologies in the modelling, evaluation and optimisation of networked enterprises' activities at different decision levels is also covered. Artificial Intelligence Techniques for Networked Manufacturing Enterprises Management is a valuable guide for postgraduates and researchers in industrial engineering, computer science, automation and operations research.

The development of technologies and management of operations is key to sustaining the success of manufacturing businesses, and since the late 1970s, the International Conference on Manufacturing Research (ICMR) has been a major annual event for academics and industrialists engaged in manufacturing research. The conference is renowned as a friendly and inclusive platform that brings together a broad community of researchers who share a common goal. This book presents the proceedings of ICMR2021, the 18th International Conference on Manufacturing Research, incorporating the 35th National Conference on Manufacturing Research, and held in Derby, UK, from 7 to 10 September 2021. The theme of the ICMR2021 conference is digital manufacturing. Within the context of Industrial 4.0, ICMR2021 provided a platform for researchers, academics and industrialists to share their vision, knowledge and experience, and to discuss emerging trends and new challenges in the field. The 60 papers included in the book are divided into 10 parts, each covering a different area of manufacturing research. These are: digital manufacturing, smart manufacturing; additive manufacturing; robotics and industrial automation; composite manufacturing; machining processes; product design and development; information and knowledge management; lean and quality management; and decision support and production optimization. The book will be of interest to all those involved in developing and managing new techniques in manufacturing industry.

As one of the eighteen field-specific reports comprising the comprehensive scope of the strategic general report of the Chinese Academy of Sciences, this sub-report addresses long-range planning for developing science and technology in the field of advanced manufacturing technology. They each craft a roadmap for their sphere of development to 2050. In their entirety, the general and sub-group reports analyze the evolution and laws governing the development of science and technology, describe the decisive impact of science and technology on the modernization process, predict that the world is on the eve of an impending S&T revolution, and call for China to be fully prepared for this new round of S&T advancement. Based on the detailed study of the demands on S&T innovation in China's modernization, the reports draw a framework for eight basic and strategic systems of socio-economic development with the support of science and technology, work out China's S&T roadmaps for the relevant eight basic and strategic systems in line with China's reality, further detail S&T initiatives of strategic importance to China's modernization, and provide S&T decision-makers with comprehensive consultations for the development of S&T innovation consistent with China's reality. Supported by illustrations and tables of data, the reports provide researchers, government officials and entrepreneurs with guidance concerning research directions, the planning process, and investment. Founded in 1949, the Chinese Academy of Sciences is the nation's highest academic institution in natural sciences. Its major responsibilities are to conduct research in basic and technological sciences, to undertake nationwide integrated surveys on natural resources and ecological environment, to provide the country with scientific data and consultations for government's decision-making, to undertake government-assigned projects with regard to key S&T problems in the process of socio-economic development, to initiate personnel training, and to promote China's high-tech enterprises through its active engagement in these areas.

Artificial Intelligence, Advanced Manufacturing, Computer Science, Electronics, Control, Automation, Information Processing  
Traditional machining has many limitations in today's technology-driven world, which has caused industrial professionals to begin implementing various optimization techniques within their machining processes. The application of methods including machine learning and genetic algorithms has recently transformed the manufacturing industry and created countless opportunities in non-traditional machining methods. Significant research in this area, however, is still considerably lacking. Machine Learning Applications in Non-Conventional Machining Processes is a collection of innovative research on the advancement of intelligent technology in industrial environments and its applications within the manufacturing field. While highlighting topics including evolutionary algorithms, micro-machining, and artificial neural networks, this book is ideally designed for researchers, academicians, engineers, managers, developers, practitioners, industrialists, and students seeking current research on intelligence-based machining processes in today's technology-driven market.

Modern manufacturing systems involve many processes and operations at various hierarchical levels of decision, control and execution. New applications for systems are arising from the synergy of machines, tools, robots and computers with management and information technologies. Novel systems are designed and put into operation to manufacture old and new high-quality products with speed, accuracy and economy. This book contains over thirty papers that examine state-of-the-art and how-to-do issues, as well as new solutions. Topics covered include: Process planning/scheduling and machine-cell design Process monitoring, inspection, diagnosis and maintenance Forecasting, optimization and control Design and control of robotic automated crane systems Applications: including laser material processing, stereolithography systems, alimentary pasta processes and automated/robotic road construction and maintenance. The book explores key elements and critical factors, presents new results and tools that are applicable to real situations.

Nature-Inspired Optimization in Advanced Manufacturing Processes and Systems Subject Guide: Engineering—Industrial and Manufacturing  
The manufacturing system is going through substantial changes and developments in light of Industry 4.0. Newer manufacturing technologies are being developed and applied. There is a need to optimize these techniques when applied in different circumstances with respect to materials, tools, product configurations, and process parameters. This book covers computational intelligence applied to manufacturing. It discusses nature-inspired optimization of processes and the design and development in manufacturing systems. It explores all manufacturing processes, at both macro and micro levels, and offers manufacturing philosophies. Nonconventional manufacturing, real industry problems and case studies, research on generative processes, and relevance of all this to Industry 4.0, is also included. Researchers, students, academicians, and industry professionals will find this reference title very useful.

"This cutting-edge book covers emerging, evolutionary and nature inspired optimization techniques in the field of advanced manufacturing. The complexity of real life advanced manufacturing problems often cannot be solved by traditional engineering or computational methods. Hence, in recent years researchers and practitioners have proposed and developed new strands of advanced, intelligent techniques and methodologies. Evolutionary computing approaches are introduced in the context of a wide range of manufacturing activities, and through the examination of practical problems and their solutions, readers will gain confidence to apply these powerful computing solutions. The initial chapters introduce and discuss the well established evolutionary algorithm, to help readers to understand the basic building blocks and steps required to successfully implement their own solutions to real life advanced manufacturing problems. In the later chapters, modified and improved versions of evolutionary algorithms are discussed. The book concludes with appendices which provide general descriptions of several evolutionary algorithms"--

This book constitutes the refereed proceedings of the 18th Australian Joint Conference on Artificial Intelligence, AI 2005, held in Sydney, Australia in December 2005. The 77 revised full papers and 119 revised short papers presented together with the abstracts of 3 keynote speeches were carefully reviewed and selected from 535 submissions. The papers are categorized in three broad sections, namely: AI foundations and technologies, computational intelligence, and AI in specialized domains. Particular topics addressed by the papers are logic and reasoning, machine learning, game theory, robotic technology, data mining, neural networks, fuzzy theory and algorithms, evolutionary computing, Web intelligence, decision making, pattern recognition, agent technology, and AI applications.

This book provides readers with a guide to the use of Digital Twin in manufacturing. It presents a collection of fundamental ideas about sensor electronics and data acquisition, signal and image processing techniques, seamless data communications, artificial intelligence and machine learning for decision making, and explains their necessity for the practical application of Digital Twin in Industry. Providing case studies relevant to the manufacturing processes, systems, and sub-systems, this book is beneficial for both academics and industry professionals within the field of Industry 4.0 and digital manufacturing.

The five-volume set IFIP AICT 630, 631, 632, 633, and 634 constitutes the refereed proceedings of the International IFIP WG 5.7 Conference on Advances in Production Management Systems, APMS 2021, held in Nantes, France, in September 2021.\* The 378 papers presented were carefully reviewed and selected from 529 submissions. They discuss artificial intelligence techniques, decision aid and new and renewed paradigms for sustainable and resilient production systems at four-wall factory and value chain levels. The papers are organized in the following topical sections: Part I: artificial intelligence based optimization techniques for demand-driven manufacturing; hybrid approaches for production planning and scheduling; intelligent systems for manufacturing planning and control in the industry 4.0; learning and robust decision support systems for agile manufacturing environments; low-code and model-driven engineering for production system; meta-heuristics and optimization techniques for energy-oriented manufacturing systems; metaheuristics for production systems; modern analytics and new AI-based smart techniques for replenishment and production planning under uncertainty; system identification for manufacturing control applications; and the future of lean thinking and practice Part II: digital transformation of SME manufacturers: the crucial role of standard; digital transformations towards supply chain resiliency; engineering of smart-product-service-systems of the future; lean and Six Sigma in services healthcare; new trends and challenges in reconfigurable, flexible or agile production system; production management in food supply chains; and sustainability in production planning and lot-sizing Part III: autonomous robots in delivery logistics; digital transformation approaches in production management; finance-driven supply chain; gastronomic service system design; modern scheduling and applications in industry 4.0; recent advances in sustainable manufacturing; regular session: green production and circularity concepts; regular session: improvement models and methods for green and innovative systems; regular session: supply chain and routing management; regular session: robotics and human aspects; regular session: classification and data management methods; smart supply chain and production in society 5.0 era; and supply chain risk management under coronavirus Part IV: AI for resilience in global supply chain networks in the context of pandemic disruptions; blockchain in the operations and supply chain management; data-based services as key enablers for smart products, manufacturing and assembly; data-driven methods for supply chain optimization; digital twins based on systems engineering and semantic modeling; digital twins in companies first developments and future challenges; human-centered artificial intelligence in smart manufacturing for the operator 4.0; operations management in engineer-to-order manufacturing; product and asset life cycle management for smart and sustainable manufacturing systems; robotics technologies for control, smart manufacturing and logistics; serious games analytics: improving games and learning support; smart and sustainable production and supply chains; smart methods and techniques for sustainable supply chain management; the new digital lean manufacturing paradigm; and the role of emerging technologies in disaster relief operations: lessons from COVID-19 Part V: data-driven platforms and applications in production and logistics: digital twins and AI for sustainability; regular session: new approaches for routing problem solving; regular session: improvement of design and operation of manufacturing systems; regular session: crossdock and transportation issues; regular session: maintenance improvement and lifecycle management; regular session: additive manufacturing and mass customization; regular session: frameworks and conceptual modelling for systems and services efficiency; regular session: optimization of production and transportation systems; regular session: optimization of supply chain agility and reconfigurability; regular session: advanced modelling approaches; regular session: simulation and optimization of systems performances; regular session: AI-based approaches for quality and performance improvement of production systems; and regular session: risk and performance management of supply chains \*The conference was held online.

This 2018 strategic plan for advanced manufacturing, following extensive public outreach, is based on a vision for American leadership in advanced manufacturing across industrial sectors. This vision will be achieved by developing and transitioning new manufacturing technologies to market; educating, training, and connecting the manufacturing workforce; and expanding the capabilities of the domestic manufacturing supply chain. Strategic objectives are identified for each goal, along with technical and program priorities with specific actions and outcomes to be accomplished over the next four years. This compilation includes a reproduction of the 2019 Worldwide Threat Assessment of the U.S. Intelligence Community. American Manufacturing and Competitiveness \* Factors That Impact Innovation and Competitiveness for Advanced Manufacturing \* Vision and Goals for Advanced Manufacturing \* Goal 1: Develop and Transition New Manufacturing Technologies \* Capture the Future of Intelligent Manufacturing Systems \* Develop World-Leading Materials and Processing Technologies \* Assure Access to Medical Products through Domestic Manufacturing \* Maintain Leadership in Electronics Design and Fabrication \* Strengthen Opportunities for Food and Agricultural Manufacturing \* Goal 2: Educate, Train, and Connect the Manufacturing Workforce \* Attract and Grow Tomorrow's Manufacturing Workforce \* Update and Expand Career and Technical Education Pathways \* Promote Apprenticeship and Access to Industry-Recognized Credentials \* Match Skilled Workers with the Industries that Need Them \* Goal 3: Expand the Capabilities of the Domestic Manufacturing Supply Chain \* Increase the Role of Small and Medium-Sized Manufacturers in Advanced Manufacturing \* Encourage Ecosystems of Manufacturing Innovation \* Strengthen the Defense Manufacturing Base \* Strengthen Advanced Manufacturing for Rural Communities \* Progress Made in Achieving the Objectives from the 2012 Strategic Plan Although the United States is still the largest producer of products in some sectors, a worrisome development is the sharp decline in production and employment in some strategically important sectors, notably the communications and computer industries. America's manufacturing and defense industrial base and supply chain, composed of these and other key sectors, is essential to economic prosperity and must maintain the capacity to rapidly innovate and arm our warfighters to prevail in any conflict. Underlying all of the challenges for innovation and competitiveness in U.S. advanced manufacturing is a shortage of Americans with the science, technology, engineering, and mathematics

knowledge and technical skills needed for advanced manufacturing jobs. Appropriate education and training is required from elementary through high school, and through technical training programs, re-training, apprenticeships, postsecondary education, and access to valid, industry-recognized, competency-based credentials-one of the highest priorities of the Trump Administration. Emerging markets, exports, and trade are all affected by advanced manufacturing. Manufacturing leadership not only requires advanced technologies, but the ability to effectively leverage new technologies and platforms across industrial sectors. Emerging markets will be driven by advances in smart and digital manufacturing systems, industrial robotics, artificial intelligence, additive manufacturing, high-performance materials, semiconductor and hybrid electronics, photonics, advanced textiles, biomanufacturing, food and agriculture manufacturing, and more. Many of these technologies represent dual opportunities-not only can they make other subsectors more competitive by increasing productivity, but the market for these emerging technologies themselves will be billions of dollars annually.

This collection of 338 peer-reviewed papers, in a two-volume format, brings together the latest advances and applications of robotics, artificial intelligence, programmable controllers, lasers and other advanced processes, programmable assembly, flexible manufacturing systems, inspection; automatic test equipment, simulation, motors, controls and drives, local area networking, computer-integrated manufacturing, production planning and control, logistics and supply-chain management, human factors, and economics. This work will therefore be an invaluable guide and handbook for those involved in these fields. Review from Book News Inc.: Two thick volumes contain peer-reviewed papers from the November 2010 conference held in Shenzhen, China. The conference was sponsored by three universities in China, another in Hong Kong, and another in Australia. The papers address various aspects of research and applications pertaining to robotics, artificial intelligence, programmable controllers, lasers and other advanced processes, programmable assembly, flexible manufacturing systems, inspection, automatic test equipment, simulation, motors, controls, logistics and supply chain management, human factors, and economics, among other topics. Arrangement of the papers is in no discernible order, but a keyword index at the end of the second volume could help with navigation of the contents.

This book constitutes the thoroughly refereed joint post-proceedings of four workshops held during the Pacific Rim International Conference on Artificial Intelligence, PRICAI 2000, held in Melbourne, Australia, in August/September 2000. The 32 revised full papers presented were carefully selected during two rounds of reviewing and revision. In accordance with the four workshops represented, the book is organized in topical sections on applications of artificial intelligence in industry, artificial intelligence in electronic commerce, intelligent information agents, and teamwork and adjustable autonomy in agents.

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