

Physics Isa June 2012 P12 Worked Paper

It is generally accepted – the US administration excepted - that the emissions reduction targets agreed in the Kyoto Protocol are only the beginning of what needs to be achieved in international climate negotiations. While studies suggest that major emission reductions by industrialized countries can be achieved at low economic cost, both these and early reductions by developing countries are inevitably a major political challenge. This book focuses on European policy toward climate change, specifically its ramifications for the aviation industry. With air travel predicted to grow enormously in the coming years, the issue of climate change is hugely topical for this important industry. Accessible to students, academics and practitioners, this book is useful reading for all those with an interest in climate change, the aviation industry, or both.

This book gathers the proceedings of the I-ESA'18 Conference, which was organised by the Fraunhofer IPK, on behalf of the European Virtual Laboratory for Enterprise Interoperability (INTEROP-VLab) and the DFI, and was held in Berlin, Germany in March 2018. It presents contributions ranging from academic research and case studies, to industrial and administrative experiences with interoperability that show how, in a globalised market scenario – where the ability to cooperate with other organisations efficiently is essential in order to remain economically, socially and environmentally cost-effective – the most innovative digitised and networked enterprises ensure that their systems and applications can interoperate across heterogeneous collaborative networks of independent organisations. Furthermore, the content addresses smart services, and the business impact of enterprise interoperability on organisations. Many of the papers in this ninth volume of the I-ESA Conference proceedings include examples and illustrations to help deepen readers' understanding and generate new ideas. Offering a detailed guide to the state of the art in systems interoperability, the book will be of great value to all engineers and computer scientists working in manufacturing and other process industries, and to software engineers and electronic and manufacturing engineers working in academic settings.

Direct Nuclear Reactions deals with the theory of direct nuclear reactions, their microscopic aspects, and their effect on the motions of the individual nucleons. The principal results of the theory are described, with emphasis on the approximations involved to understand how well the theory can be expected to hold under specific experimental conditions. Applications to the analysis of experiments are also considered. This book consists of 19 chapters and begins by explaining the difference between direct and compound nuclear reactions. The reader is then introduced to the theory of plane waves, some results of scattering theory, and the phenomenological optical potential. The following chapters focus on form factors and their nuclear structure content; the basis of the optical potential as an effective interaction; reactions such as inelastic single- and two-nucleon transfer reactions; the effect of nuclear correlations; and the role of multiple-step reactions. The theory of inelastic scattering and the relationship between the effective and free interactions are also discussed, along with reactions between heavy ions and the polarizability of nuclear wave functions during a heavy-ion reaction. This monograph will be of interest to nuclear physicists.

This book explores a number of important issues in the area of occupational safety and hygiene. Presenting both research and best practices for the evaluation of occupational risk, safety and health in various types of industry, it particularly focuses on occupational safety in automated environments, innovative management systems and occupational safety in a global context. The different chapters examine the perspectives of all those involved, such as managers, workers and OSH professionals. Based on selected contributions presented at the 16th International Symposium on Occupational Safety and Hygiene (SHO 2020), held on 6–7 April, 2020, in Porto, Portugal, the book serves as a timely reference guide and source of inspiration to OSH researchers, practitioners and organizations operating in a global context.

This book describes the latest advances in intelligent techniques such as fuzzy logic, neural networks, and optimization algorithms, and their relevance in building intelligent information systems in combination with applied mathematics. The authors also outline the applications of these systems in areas like intelligent control and robotics, pattern recognition, medical diagnosis, time series prediction, and optimization of complex problems. By sharing fresh ideas and identifying new targets/problems it offers young researchers and students new directions for their future research. The book is intended for readers from mathematics and computer science, in particular professors and students working on theory and applications of intelligent systems for real-world applications.

This Guide aims to assist users in searching for technology information using patent documents, a rich source of technical, legal and business information presented in a generally standardized format and often not reproduced anywhere else. Though the Guide focuses on patent information, many of the search techniques described here can also be applied in searching other non-patent sources of technology information.

This excellent text for advanced undergraduate and graduate students covers norms, numerical solutions of linear systems and matrix factoring, eigenvalues and eigenvectors, polynomial approximation, and more. Many examples and problems. 1966 edition.

This book presents the proceedings of the fifth International Symposium on Modelling and Implementation of Complex Systems (MISC 2018). The event was held in Laghouat, Algeria, on December 16–18, 2018. The 25 papers gathered here have been selected from 109 submissions using a strict peer-review process, and address a range of topics concerning the theory and applications of networking and distributed computing, including: cloud computing and the IoT, metaheuristics and optimization, computational intelligence, software engineering and formal methods.

Trends such as the massive growth in availability of air travel and air freight are among those which have led to aviation becoming one of the fastest growing emitters of greenhouse gases. These trends have also caused a shift in expectations of how we do business where we go on holiday and what food and goods we can buy. For these reasons aviation is (and is set to stay) high up on global political organizational and media agendas. This textbook is the first to attempt a comprehensive review of the topic bringing together an international team of leading scientists. Starting with the science.

The jute commodity system as prevalent in the Indian subcontinent is a conglomeration of paradoxes. Jute was once called the golden fibre on account of its contribution to means of livelihood to millions of farmers, traders, manufacturers in the unorganized sector, mill workers in the organized sector as well scores of people employed in the service sector relating to trading, manufacturing and exports of jute and jute goods. Jute industry along with textile manufacturing provided the foundation of modern manufacturing industry in India. Simultaneously, this industry was also the fountain

head of the growth of private entrepreneurship and capital in India. Most of the traditional Industrial Houses in India grew out of trading and manufacturing of jute and jute goods, coal and tea. On the other hand most of the farmers involved in cultivation of natural fibres like jute are small and marginal farmers. Without alternative avenues of gainful employment elsewhere, these millions in South Asia would be deprived of a part of their livelihood. The entire commodity chain of natural fibres is characterized by low productivity, low value addition, high volumes and low returns. The advent and discovery of mineral oil helped exploit cheap HDPE and PP polyethylene sacks, which started replacing the natural fibre based packaging materials. As a result, the jute industry got wiped out from Europe, America and the Far East. Today, it is survived in the Indian subcontinent and to a lesser extent in Brazil. The unique feature of the volume is that it focuses on the first hand experience of the policy-makers and other stakeholders in the jute commodity system, who are confronted with a dilemma of reviving a declining economic subsector. At this juncture, when there is need for a Commodity Development Strategy suitable to the ethos of a commodity like the jute fibre, the present, volumes attempts to devise such a strategy thorough analysis of the system based on authentic and up-to-date information. The Book furnishes an erudite analysis and stock-taking of the jute commodity system. This analysis points out to the fact that there is a need for a holistic, systemic approach to the problems being faced by this sector focusing on the economic exploitation of the whole jute plant; holistic research for addressing productivity and processing efficiency in the entire commodity chain of jute; and creating a network of organisations for advocacy for jute and allied fibres, which would focus on repositioning the golden fibre as sustainable and eco-friendly commodity with the help of green and sustainable development advocacy groups. The Commodity Development Strategy highlights the need for greater effort for significant degree of product diversification which would entail significant consumption of the fibre or fabric in volume terms. The volume ends with an optimistic note with ideas of inclusive development under the Millennium Development Goals and Carbon Credits Sustainable Development under the United Nations Framework Convention on Climate Change the welcome paradigm shifts in the approach to the jute sector. The effort by Sh Roul is a timely one on the eve of the observance of 2009 as International Year for Natural Fibres by the United Nations. The book is quite comprehensive with its focus on a wide range of issues pertaining to the jute agri-commodity system addressed against a historical background and from macro-economic analytical perspective. The volume offers stimulating reading for those interested in the dynamics of agricultural commodity systems like jute and allied fibres. The book is expected to help sensitise national governments, international organizations and nongovernmental organizations towards the eco-sustainability of jute as a natural fibre. The book can serve as an excellent reference book for post-graduate students in economics, jute and textiles management, development studies, regional development and agriculture and agro-marketing.

This report assesses the levels and effects of exposure to ionizing radiation. Scientific findings underpin radiation risk evaluation and international protection standards. This report comprises a report with two underpinning scientific annexes. The first annex recapitulates and clarifies the philosophy of science as well as the scientific knowledge for attributing observed health effects in individuals and populations to radiation exposure, and distinguishes between that and inferring risk to individuals and populations from an exposure. The second annex reviews the latest thinking and approaches to quantifying the uncertainties in assessments of risk from radiation exposure, and illustrates these approaches with application to examples that are highly pertinent to radiation protection.

This book is a printed edition of the Special Issue "Combined Scheduling and Control" that was published in Processes Advances in Safety, Reliability and Risk Management contains the papers presented at the 20th European Safety and Reliability (ESREL 2011) annual conference in Troyes, France, in September 2011. The books covers a wide range of topics, including: Accident and Incident Investigation; Bayesian methods; Crisis and Emergency Management; Decision Making

Handbook of Optical Sensors provides a comprehensive and integrated view of optical sensors, addressing the fundamentals, structures, technologies, applications, and future perspectives. Featuring chapters authored by recognized experts and major contributors to the field, this essential reference: Explains the basic aspects of optical sensors and This book includes a selection of papers from the 2017 International Conference on Software Process Improvement (CIMPS'17), presenting trends and applications in software engineering. Held from 18th to 20th October 2017 in Zacatecas, Mexico, the conference provided a global forum for researchers and practitioners to present and discuss the latest innovations, trends, results, experiences and concerns in various areas of software engineering, including but not limited to software processes, security in information and communication technology, and big data. The main topics covered are organizational models, standards and methodologies, software process improvement, knowledge management, software systems, applications and tools, information and communication technologies and processes in non-software domains (mining, automotive, aerospace, business, health care, manufacturing, etc.) with a demonstrated relationship to software engineering challenges.

Exciting new developments in risk assessment and management Risk assessment and management is fundamentally founded on the knowledge available on the system or process under consideration. While this may be self-evident to the laymen, thought leaders within the risk community have come to recognize and emphasize the need to explicitly incorporate knowledge (K) in a systematic, rigorous, and transparent framework for describing and modeling risk. Featuring contributions by an international team of researchers and respected practitioners in the field, Knowledge in Risk Assessment and Management explores the latest developments in the ongoing effort to use risk assessment as a means for characterizing knowledge and/or lack of knowledge about a system or process of interest. By offering a fresh perspective on risk assessment and management, the book represents a significant contribution to the development of a sturdier foundation for the practice of risk assessment and for risk-informed decision making. How should K be described and evaluated in risk assessment? How can it be reflected and taken into account in formulating risk management

strategies? With the help of numerous case studies and real-world examples, this book answers these and other critical questions at the heart of modern risk assessment, while identifying many practical challenges associated with this explicit framework. This book, written by international scholars and leaders in the field, and edited to make coverage both conceptually advanced and highly accessible: Offers a systematic, rigorous and transparent perspective and framework on risk assessment and management, explicitly strengthening the links between knowledge and risk Clearly and concisely introduces the key risk concepts at the foundation of risk assessment and management Features numerous cases and real-world examples, many of which focus on various engineering applications across an array of industries Knowledge in Risk Assessment and Management is a must-read for risk assessment and management professionals, as well as graduate students, researchers and educators in the field. It is also of interest to policy makers and business people who are eager to gain a better understanding of the foundations and boundaries of risk assessment, and how its outcomes should be used for decision-making.

This book presents new findings on cyber-physical systems design and modelling approaches based on AI and data-driven techniques, identifying the key industrial challenges and the main features of design and modelling processes. To enhance the efficiency of the design process, it proposes new approaches based on the concept of digital twins. Further, it substantiates the scientific, practical, and methodological approaches to modelling and simulating of cyber-physical systems. Exploring digital twins of cyber-physical systems as well as of production systems, it proposes combining both mathematical models and data processing techniques as advanced methods for cyber-physical system design and modelling. Moreover, it presents the implementation of the developed prototypes, including testing in real industries, which have collected and analyzed big data and proved their effectiveness. The book is intended for practitioners, enterprise representatives, scientists, and Ph.D. and master's students interested in the research and applications of cyber-physical systems in different domains.

This book constitutes the proceedings of the 12th IFIP TC 8 International Conference, CISIM 2013, held in Cracow, Poland, in September 2013. The 44 papers presented in this volume were carefully reviewed and selected from over 60 submissions. They are organized in topical sections on biometric and biomedical applications; pattern recognition and image processing; various aspects of computer security, networking, algorithms, and industrial applications. The book also contains full papers of a keynote speech and the invited talk.

Service orientation is emerging nowadays at multiple organizational levels in enterprise business, and it leverages technology in response to the growing need for greater business integration, flexibility and agility of manufacturing enterprises. The Service Oriented Architecture (SOA) analysed throughout the book represents a technical architecture, a business modelling concept, a type of infrastructure, an integration source and a new way of viewing units of automation within the enterprise. The primary goal of SOA is to align the business world with the world of information technology in a way that makes both more effective. The service value creation model at enterprise level consists of using a Service Component Architecture for business process applications, based on entities which handle services. In this view a service is a piece of software encapsulating the business/control logic or resource functionality of an enterprise entity that exhibits an individual competence and responds to a specific request to fulfil a local (operation) or global objective (batch production). The value creation model is based on a 2-stage approach: • Agentification: complex manufacturing processes are split in services provided by informational agents which are discovered, accessed and executed. This leads to a modular, reusable, agile and easy integrate integration. • Holonification: holons link the material flow and physical entities of the manufacturing processes with the informational part (IT services realized by distributed intelligence) facilitating thus traceability the developing of flexible control systems. This book gathers contributions from scientists, researchers and industrialists on concepts, methods, frameworks and implementing issues addressing trends in the service orientation of control technology and management applied to manufacturing enterprise. This book gathers contributions from scientists, researchers and industrialists on concepts, methods, frameworks and implementing issues addressing trends in the service orientation of control technology and management applied to manufacturing enterprise. This proceedings book includes the results from the International Conference on Deep Learning, Artificial Intelligence and Robotics, held in Malaviya National Institute of Technology, Jawahar Lal Nehru Marg, Malaviya Nagar, Jaipur, Rajasthan, 302017. The scope of this conference includes all subareas of AI, with broad coverage of traditional topics like robotics, statistical learning and deep learning techniques. However, the organizing committee expressly encouraged work on the applications of DL and AI in the important fields of computer/electronics/electrical/mechanical/chemical/textile engineering, health care and agriculture, business and social media and other relevant domains. The conference welcomed papers on the following (but not limited to) research topics: - Deep Learning: Applications of deep learning in various engineering streams, neural information processing systems, training schemes, GPU computation and paradigms, human-computer interaction, genetic algorithm, reinforcement learning, natural language processing, social computing, user customization, embedded computation, automotive design and bioinformatics - Artificial Intelligence: Automatic control, natural language processing, data mining and machine learning tools, fuzzy logic, heuristic optimization techniques (membrane-based separation, wastewater treatment, process control, etc.) and soft computing - Robotics: Automation and advanced control-based applications in engineering, neural networks on low powered devices, human-robot interaction and communication, cognitive, developmental and evolutionary robotics, fault diagnosis, virtual reality, space and underwater robotics, simulation and modelling, bio-inspired robotics, cable robots, cognitive robotics, collaborative robotics, collective and social robots and humanoid robots It was a collaborative platform for academic experts, researchers and corporate professionals for interacting their research in various domain of engineering like robotics, data acquisition, human-computer interaction, genetic algorithm, sentiment analysis as well as usage of AI and advanced computation in various industrial challenges based applications such as user customization, augmented reality,

voice assistants, reactor design, product formulation/synthesis, embedded system design, membrane-based separation for protecting environment along with wastewater treatment, rheological properties estimation for Newtonian and non-Newtonian fluids used in micro-processing industries and fault detection.

This book constitutes the thoroughly refereed proceedings of the Third International Conference on Advances in Communication, Network, and Computing, CNC 2012, held in Chennai, India, February 24-25, 2012. The 41 revised full papers presented together with 29 short papers and 14 poster papers were carefully selected and reviewed from 425 submissions. The papers cover a wide spectrum of issues in the field of Information Technology, Networks, Computational Engineering, Computer and Telecommunication Technology, ranging from theoretical and methodological issues to advanced applications.

It is my contention that the table of intentionality (rationality, mind, thought, language, personality etc.) that features prominently here describes more or less accurately, or at least serves as an heuristic for, how we think and behave, and so it encompasses not merely philosophy and psychology, but everything else (history, literature, mathematics, politics etc.). Note especially that intentionality and rationality as I (along with Searle, Wittgenstein and others) view it, includes both conscious deliberative linguistic System 2 and unconscious automated prelinguistic System 1 actions or reflexes. I provide a critical survey of some of the major findings of two of the most eminent students of behavior of modern times, Ludwig Wittgenstein and John Searle, on the logical structure of intentionality (mind, language, behavior), taking as my starting point Wittgenstein's fundamental discovery -that all truly 'philosophical' problems are the same-confusions about how to use language in a particular context, and so all solutions are the same-looking at how language can be used in the context at issue so that its truth conditions (Conditions of Satisfaction or COS) are clear. The basic problem is that one can say anything but one cannot mean (state clear COS for) any arbitrary utterance and meaning is only possible in a very specific context. I analyze various writings by and about them from the modern perspective of the two systems of thought (popularized as 'thinking fast, thinking slow'), employing a new table of intentionality and new dual systems nomenclature. I show that this is a powerful heuristic for describing behavior. Thus, all behavior is intimately connected if one takes the correct viewpoint. The Phenomenological Illusion (oblivion to our automated System 1) is universal and extends not merely throughout philosophy but throughout life. I am sure that Chomsky, Obama, Zuckerberg and the Pope would be incredulous if told that they suffer from the same problem as Hegel, Husserl and Heidegger, (or that that they differ only in degree from drug and sex addicts in being motivated by stimulation of their frontal cortices by the delivery of dopamine (and over 100 other chemicals) via the ventral tegmentum and the nucleus accumbens), but it's clearly true. While the phenomenologists only wasted a lot of people's time, they are wasting the earth and their descendant's future. Space geodetic techniques, e.g., global navigation satellite systems (GNSS), Very Long Baseline Interferometry (VLBI), satellite gravimetry and altimetry, and GNSS Reflectometry

Feedback Systems Princeton University Press

Designing EEG Experiments for Studying the Brain: Design Code and Example Datasets details the design of various brain experiments using electroencephalogram (EEG). Providing guidelines for designing an EEG experiment, it is primarily for researchers who want to venture into this field by designing their own experiments as well as those who are excited about neuroscience and want to explore various applications related to the brain. The first chapter describes how to design an EEG experiment and details the various parameters that should be considered for success, while remaining chapters provide experiment design for a number of neurological applications, both clinical and behavioral. As each chapter is accompanied with experiment design codes and example datasets, those interested can quickly design their own experiments or use the current design for their own purposes. Helpful appendices provide various forms for one's experiment including recruitment forms, feedback forms, ethics forms, and recommendations for related hardware equipment and software for data acquisition, processing, and analysis. Written to assist neuroscientists in experiment designs using EEG Presents a step-by-step approach to designing both clinical and behavioral EEG experiments Includes experiment design codes and example datasets Provides inclusion and exclusion criteria to help correctly identify experiment subjects and the minimum number of samples Includes appendices that provide recruitment forms, ethics forms, and various subjective tests associated with each of the chapters

This book constitutes the refereed proceedings of 12 international workshops held in Tallinn, Estonia, in conjunction with the 10th International Conference on Business Process Management, BPM 2012, in September 2012. The 12 workshops comprised Adaptive Case Management and Other Non-Workflow Approaches to BPM (ACM 2012), Business Process Design (BPD 2012), Business Process Intelligence (BPI 2012), Business Process Management and Social Software (BPMS2 2012), Data- and Artifact-Centric BPM (DAB 2012), Event-Driven Business Process Management (edBPM 2012), Empirical Research in Business Process Management (ER-BPM 2012), Process Model Collections (PMC 2012), Process-Aware Logistics Systems (PALS 2012), Reuse in Business Process Management (rBPM 2012), Security in Business Processes (SBP 2012), and Theory and Applications of Process Visualization (TAProViz 2012). The 56 revised full papers presented were carefully reviewed and selected from 141 submissions.

The revised and extended papers collected in this volume represent the cutting-edge of research at the nexus of electrical engineering and intelligent systems. They were selected from well over 1000 papers submitted to the high-profile international World Congress on Engineering held in London in July 2011. The chapters cover material across the full spectrum of work in the field, including computational intelligence, control engineering, network management, and wireless networks. Readers will also find substantive papers on signal processing, Internet computing, high performance computing, and industrial applications. The Electrical Engineering and Intelligent Systems conference, as part of the 2011 World Congress on Engineering was organized under the auspices of the non-profit International Association of Engineers (IAENG). With more than 30 nations represented on the conference committees alone, the Congress features the best and brightest scientific minds from a multitude of disciplines related to engineering. These peer-reviewed papers demonstrate the huge strides currently being taken in this rapidly developing field and reflect the excitement of those at the frontiers of this research.

The purpose of authority control is to ensure consistency in representing a value - a name of a person, a place name, or a term or code representing a subject - in the elements used as access points in information retrieval. The primary purpose of this study is to produce a framework that will provide a clearly stated and commonly shared understanding of what the subject authority data/record/file aims to provide information about, and the expectation of what such data should achieve in terms of answering user needs."

Using the new OpenCL (Open Computing Language) standard, you can write applications that access all available programming resources: CPUs, GPUs, and other processors such as DSPs and the Cell/B.E. processor. Already implemented by Apple, AMD, Intel, IBM, NVIDIA, and other leaders, OpenCL has outstanding potential for PCs, servers, handheld/embedded devices, high performance computing, and even

cloud systems. This is the first comprehensive, authoritative, and practical guide to OpenCL 1.1 specifically for working developers and software architects. Written by five leading OpenCL authorities, OpenCL Programming Guide covers the entire specification. It reviews key use cases, shows how OpenCL can express a wide range of parallel algorithms, and offers complete reference material on both the API and OpenCL C programming language. Through complete case studies and downloadable code examples, the authors show how to write complex parallel programs that decompose workloads across many different devices. They also present all the essentials of OpenCL software performance optimization, including probing and adapting to hardware. Coverage includes Understanding OpenCL's architecture, concepts, terminology, goals, and rationale Programming with OpenCL C and the runtime API Using buffers, sub-buffers, images, samplers, and events Sharing and synchronizing data with OpenGL and Microsoft's Direct3D Simplifying development with the C++ Wrapper API Using OpenCL Embedded Profiles to support devices ranging from cellphones to supercomputer nodes Case studies dealing with physics simulation; image and signal processing, such as image histograms, edge detection filters, Fast Fourier Transforms, and optical flow; math libraries, such as matrix multiplication and high-performance sparse matrix multiplication; and more Source code for this book is available at <https://code.google.com/p/opencv-book-samples/>

Collectively working robot teams can solve a problem more efficiently than a single robot, while also providing robustness and flexibility to the group. Swarm robotics model is a key component of a cooperative algorithm that controls the behaviors and interactions of all individuals. The robots in the swarm should have some basic functions, such as sensing, communicating, and monitoring, and satisfy the following properties.

This book is a printed edition of the Special Issue "Advances in Multi-Sensor Information Fusion: Theory and Applications 2017" that was published in Sensors

This book describes the state of the art across the broad range of spectroscopic techniques used in the study of biological systems. It reviews some of the latest advances achieved in the application of these techniques in the analysis and characterization of small and large biological compounds, covering topics such as VUV/UV and UV-visible spectroscopies, fluorescence spectroscopy, IR and Raman techniques, dynamic light scattering (DLS), circular dichroism (CD/SR-CD), pulsed electron paramagnetic resonance techniques, Mössbauer spectroscopy, nuclear magnetic resonance, X-ray methods and electron and ion impact spectroscopies. The second part of the book focuses on modelling methods and illustrates how these tools have been used and integrated with other experimental and theoretical techniques including also electron transfer processes and fast kinetics methods. The book will benefit students, researchers and professionals working with these techniques to understand the fundamental mechanisms of biological systems.

Structured Computer Organization, specifically written for undergraduate students, is a best-selling guide that provides an accessible introduction to computer hardware and architecture. This text will also serve as a useful resource for all computer professionals and engineers who need an overview or introduction to computer architecture. This book takes a modern structured, layered approach to understanding computer systems. It's highly accessible - and it's been thoroughly updated to reflect today's most critical new technologies and the latest developments in computer organization and architecture. Tanenbaum's renowned writing style and painstaking research make this one of the most accessible and accurate books available, maintaining the author's popular method of presenting a computer as a series of layers, each one built upon the ones below it, and understandable as a separate entity.

This well-known undergraduate electrodynamics textbook is now available in a more affordable printing from Cambridge University Press. The Fourth Edition provides a rigorous, yet clear and accessible treatment of the fundamentals of electromagnetic theory and offers a sound platform for explorations of related applications (AC circuits, antennas, transmission lines, plasmas, optics and more). Written keeping in mind the conceptual hurdles typically faced by undergraduate students, this textbook illustrates the theoretical steps with well-chosen examples and careful illustrations. It balances text and equations, allowing the physics to shine through without compromising the rigour of the math, and includes numerous problems, varying from straightforward to elaborate, so that students can be assigned some problems to build their confidence and others to stretch their minds. A Solutions Manual is available to instructors teaching from the book; access can be requested from the resources section at www.cambridge.org/electrodynamics.

Assessment and Learning places learning at the centre of our concerns and explicitly underscores the importance of assessment in that learning. This new edition provides a comprehensive overview of assessment that is used to support learning, practice-based theory on assessment for learning, and formative assessment to support individual development and motivate learners. With a strong list of existing and new contributors, this second edition has been updated to include the latest work on assessment. Readers will find research-informed insights from a wide variety of international contexts. It features: - New chapters on e-assessment, the learner's perspective on assessment and learning and the influence of assessment on how we value learning - Teacher-friendly assessment topics - Practical examples and chapter summaries throughout This book is useful to teacher educators and researchers on postgraduate courses in education, teaching, learning and assessment. John Gardner is a professor of education at Queens University Belfast, and President of the British Educational Research Association.

Companies and organisations are increasingly using machine translation to improve efficiency and cost-effectiveness, and then edit the machine translated output to create a fluent text that adheres to given text conventions. This procedure is known as post-editing. Translation and post-editing can often be categorised as problem-solving activities. When the translation of a source text unit is not immediately obvious to the translator, or in other words, if there is a hurdle between the source item and the target item, the translation process can be considered problematic. Conversely, if there is no hurdle between the source and target texts, the translation process can be considered a task-solving activity and not a problem-solving activity. This study investigates whether machine translated output influences problem-solving effort in internet research, syntax, and other problem indicators and whether the effort can be linked to expertise. A total of 24 translators (twelve professionals and twelve semi-professionals) produced translations from scratch from English into German, and (monolingually) post-edited machine translation output for this study. The study is part of the CRITT TPR-DB database. The translation and (monolingual) post-editing sessions were recorded with an eye-tracker and a keylogging program. The participants were all given the same six texts (two texts per task). Different approaches were used to identify problematic translation units. First, internet research behaviour was considered as research is a distinct

indicator of problematic translation units. Then, the focus was placed on syntactical structures in the MT output that do not adhere to the rules of the target language, as I assumed that they would cause problems in the (monolingual) post-editing tasks that would not occur in the translation from scratch task. Finally, problem indicators were identified via different parameters like Munit, which indicates how often the participants created and modified one translation unit, or the inefficiency (InEff) value of translation units, i.e. the number of produced and deleted tokens divided by the final length of the translation. Finally, the study highlights how these parameters can be used to identify problems in the translation process data using mere keylogging data.

The essential introduction to the principles and applications of feedback systems—now fully revised and expanded This textbook covers the mathematics needed to model, analyze, and design feedback systems. Now more user-friendly than ever, this revised and expanded edition of Feedback Systems is a one-volume resource for students and researchers in mathematics and engineering. It has applications across a range of disciplines that utilize feedback in physical, biological, information, and economic systems. Karl Åström and Richard Murray use techniques from physics, computer science, and operations research to introduce control-oriented modeling. They begin with state space tools for analysis and design, including stability of solutions, Lyapunov functions, reachability, state feedback observability, and estimators. The matrix exponential plays a central role in the analysis of linear control systems, allowing a concise development of many of the key concepts for this class of models. Åström and Murray then develop and explain tools in the frequency domain, including transfer functions, Nyquist analysis, PID control, frequency domain design, and robustness. Features a new chapter on design principles and tools, illustrating the types of problems that can be solved using feedback Includes a new chapter on fundamental limits and new material on the Routh-Hurwitz criterion and root locus plots Provides exercises at the end of every chapter Comes with an electronic solutions manual An ideal textbook for undergraduate and graduate students Indispensable for researchers seeking a self-contained resource on control theory

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