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Robotics, Mechatronics, and Artificial Intelligence Innovations in Applied Artificial Intelligence *Artificial Intelligence as an Experimental Science* Nanoinformatics *Attention and Performance XIV* Machine Learning with the Raspberry Pi MACHINE LEARNING - FROM ARTIFICIAL INTELLIGENCE TO PAIN RESEARCHES: DELINEATING LABORATORY EXPERIMENTS Experiments in Artificial Intelligence for Microcomputers *The interplay between experimental and theoretical methods in artificial intelligence PRACTICAL MACHINE LEARNING - Artificial Intelligence-Aided Materials Design A Method for Understanding Experimental Computer Programs in Artificial Intelligence Research Machine Learning for Scientific Discoveries* Experiments in Artificial Intelligence for Small Computers Physics of Data Science and Machine Learning Artificial Intelligence *Made-up Minds* **The Behavioral Economics of Artificial Intelligence: Lessons from Experiments with Computer Players I and artificial intelligence: common in different behavior of different people. Experiments, models, algorithms** *Experimental Measurement of Trust in and Trustworthiness of Artificial Intelligence and Their Influencing Drivers* **Artificial Intelligence Writing Technological Development Artificial Intelligence for Materials Science Intelligence as Adaptive Behavior** Artificial Intelligence Future Teaching And Writing Development **Experimental Use of Artificial Intelligence for (future) ATC Systems An Artificial Intelligence Framework for Experimental Design and Analysis in Discrete Event Simulation** Machine Learning and Human Capital **What If?** *Applications of Artificial Intelligence in Additive Manufacturing Artificial Intelligence in Ophthalmology* **Nissy** An Experimental Investigation of the Effects of Artificial Intelligence Systems on the Training of Novice Auditors **The Implementation of Taxman II Experiments in Artificial Intelligence for** *Machine Learning in Chemistry* **Mancala in Java** *Computational Neuroscience for Advancing Artificial Intelligence: Models, Methods and Applications* **Artificial Intelligence in Drug Discovery** *The Miller-Urey Experiment and Artificial Intelligence Proceedings of the Thirteenth National Conference on Artificial Intelligence and the Eighth Innovative Applications of Artificial Intelligence Conference*

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AAAI proceedings describe innovative concepts, techniques, perspectives, and observations that present promising research directions in artificial intelligence. August 4-8, 1996, Portland, OregonAAAI '96 provides a broad forum for information exchange and interaction among researchers working in different subdisciplines, in different research paradigms, and in different stages of research in artificial intelligence. Topics cover principles underlying cognition, perception and action; design, application, and evaluation of AI algorithms and systems; architectures and frameworks for classes of AI systems; and analysis of tasks and domains in which intelligent systems perform. Included are contributions that describe theoretical, empirical, or experimental results; represent areas of AI that may have been underrepresented in recent conferences; present promising new research concepts, techniques, or perspectives; or discuss issues that cross traditional subdisciplinary boundaries. Two-volume setDistributed for the AAAI Press Accessible to all readers, including students of secondary school and amateur technology enthusiasts, Robotics, Mechatronics, and Artificial Intelligence simplifies the process of finding basic circuits to perform simple tasks, such as how to control a DC or step motor, and provides instruction on creating moving robotic parts, such as an "eye" or an "ear." Though many companies offer kits for project

construction, most experimenters want to design and build their own robots and other creatures specific to their needs and goals. With this new book by Newton Braga, hobbyists and experimenters around the world will be able to decide what skills they want to feature in a project and then choose the right "building blocks" to create the ideal results. In the past few years the technology of robotics, mechatronics, and artificial intelligence has exploded, leaving many people with the desire but not the means to build their own projects. The author's fascination with and expertise in the exciting field of robotics is demonstrated by the range of simple to complex project blocks he provides, which are designed to benefit both novice and experienced robotics enthusiasts. The common components and technology featured in the project blocks are especially beneficial to readers who need practical solutions that can be implemented easily by their own hands, without incorporating expensive, complicated technology. Accessible to technicians and hobbyists with many levels of experience, and written to provide inexpensive and creative fun with robotics Appeals to all sorts of technology enthusiasts, including those involved with electronics, computers, home automation, mechanics, and other areas Machine learning (ML) is a set of techniques for data analysis used to investigate and predict results from a set of data using algorithms and statistical tools. In pain researches, a lot of data are generated after in vitro and in vivo experiments that, combined, broaden the knowledge about mechanisms and molecular targets for pain control. Behavioral test is one of the most important tools used on pain studies. In animal models, for example, paw withdrawal thresholds and mechanical allodynia are measured with a von Frey equipment before and after a painful stimulus or its treatment. Many of these tests require months of experimentation and involve high-cost drugs and animals. Based on above-mentioned, this work aims to demonstrate how ML techniques could be used to predict how a determined dose of an antagonist would work in a model of neuropathic pain targeting the purinergic signaling. In vivo, experimental test was done using the following antagonist doses: 0.001, 0.01, 0.1, 1.0, and 3.0 mmol. Mean of mechanical allodynia was assessed with electronic von Frey. ML approach was based on Linear Regression and Knn algorithm using scikit-learn implementation; the data set training was configured without 0.01 mmol measures. The resulting ML value was 8.9 g, inside the experimental standard error, and Knn confirmed the data class. ML could successfully predict the mean of animal mechanical threshold. In this context, ML is a very useful tool to guide behavioral experiments, concentrating efforts to predict experimental results and prevent costly tests. “Intelligent systems are those which produce intelligent o?springs.” AI researchers have been focusing on developing and employing strong methods that are capable of solving complex real-life problems. The 18th International Conference on Industrial & Engineering Applications of Arti?cial Intelligence & Expert Systems (IEA/AIE 2005) held in Bari, Italy presented such work performed by many scientists worldwide. The Program Committee selected long papers from contributions presenting more complete work and posters from those reporting ongoing research. The Committee enforced the rule that only original and unpublished work could be considered for inclusion in these proceedings. The Program Committee selected 116 contributions from the 271 subm- ted papers which cover the following topics: arti?cial systems, search engines, intelligent interfaces, knowledge discovery, knowledge-based technologies, na- ral language processing, machine learning applications, reasoning technologies, uncertainty management, applied data mining, and technologies for knowledge management. The contributions oriented to the technological aspects of AI and the quality of the papers are witness to a research activity clearly aimed at consolidating the theoretical results that have already been achieved. The c- ference program also included two invited lectures, by Katharina Morik and Roberto Pieraccini.
Manypeoplecontributedindi?erentwaystothesuccessoftheconferenceand to this volume. The authors who continue to show their enthusiastic interest in applied intelligence research are a very important part of our success. We highly appreciate the contribution of the members of the Program Committee, as well as others who reviewed all the submitted papers with e?ciency and dedication. This book explains the modern approach to discovering physical concepts with machine learning and elucidates its strengths and limitations. Will research soon be done by artificial intelligence, thereby

making human researchers superfluous? The basic idea of the approach is to employ a deep learning architecture, SciNet, to model a simplified version of a physicist's reasoning process. SciNet finds the relevant physical parameters, such as the mass of a particle, from experimental data and makes predictions based on the parameters found. The author demonstrates how to extract conceptual information from such parameters, e.g., Copernicus' conclusion that the solar system is heliocentric. A few years from now a new life form will awaken, created not by God or by man but by a fusion of emerging technologies which may spell the end of humankind as we know it. And if it does, who's to blame, Nissy the omniscient quantum computer, Jason Godwin its genius architect, Blake Lipinski developer of the bioprinter that sequenced its DNA into life or man's insatiable fascination with playing God, bringing artificial life into existence? With the world hanging on the brink of devastation, only a young girl named Amy, Jason's adopted daughter, has a chance to right what he neglected in his design. Although this riveting and suspenseful tale of technology untamed is fiction, it's not about if, but when, it will come to pass. Prepare to meet NISSY. Attention and Performance XIV, provides a broad, historic, and timely synthesis ofthe empirical and theoretical ideas on which performance theory now rests. After the recent launch of home-based personal 3D printers as well as government funding and company investments in advancing manufacturing initiatives, additive manufacturing has rapidly come to the forefront of discussion and become a more approachable lucrative career of particular interest to the younger generation. It is essential to identify the long-term competitive advantages and how to teach, inspire, and create a resolute community of supporters, learners, and new leaders in this important industry progression. Applications of Artificial Intelligence in Additive Manufacturing provides instruction on how to use artificial intelligence to produce additively manufactured parts. It discusses an overview of the field, the strategic blending of artificial intelligence and additive manufacturing, and features case studies on the various emerging technologies. Covering topics such as artificial intelligence models, experimental investigations, and online detections, this book is an essential resource for engineers, manufacturing professionals, computer scientists, AI scientists, researchers, educators, academicians, and students. Progress in the application of machine learning (ML) to the physical and life sciences has been rapid. A decade ago, the method was mainly of interest to those in computer science departments, but more recently ML tools have been developed that show significant potential across wide areas of science. There is a growing consensus that ML software, and related areas of artificial intelligence, may, in due course, become as fundamental to scientific research as computers themselves. Yet a perception remains that ML is obscure or esoteric, that only computer scientists can really understand it, and that few meaningful applications in scientific research exist. This book challenges that view. With contributions from leading research groups, it presents in-depth examples to illustrate how ML can be applied to real chemical problems. Through these examples, the reader can both gain a feel for what ML can and cannot (so far) achieve, and also identify characteristics that might make a problem in physical science amenable to a ML approach. This text is a valuable resource for scientists who are intrigued by the power of machine learning and want to learn more about how it can be applied in their own field. This book describes the application of artificial intelligence (AI)/machine learning (ML) concepts to develop predictive models that can be used to design alloy materials, including hard and soft magnetic alloys, nickel-base superalloys, titanium-base alloys, and aluminum-base alloys. Readers new to AI/ML algorithms can use this book as a starting point and use the MATLAB® and Python implementation of AI/ML algorithms through included case studies. Experienced AI/ML researchers who want to try new algorithms can use this book and study the case studies for reference. Offers advantages and limitations of several AI concepts and their proper implementation in various data types generated through experiments and computer simulations and from industries in different file formats Helps readers to develop predictive models through AI/ML algorithms by writing their own computer code or using resources where they do not have to write code Covers downloadable resources such as MATLAB GUI/APP and Python implementation that can be used on common mobile devices Discusses the CALPHAD approach and ways to use data generated from it Features a chapter on

metallurgical/materials concepts to help readers understand the case studies and thus proper implementation of AI/ML algorithms under the framework of data-driven materials science Uses case studies to examine the importance of using unsupervised machine learning algorithms in determining patterns in datasets This book is written for materials scientists and metallurgists interested in the application of AI, ML, and data science in the development of new materials. Artificial Intelligence presents a practical guide to AI, including agents, machine learning and problem-solving simple and complex domains. The author proposes that artificial intelligence evolved along parallel life to biological life. Psychological research (AI) educational social robots and students relationshipWhether can (AI) educational robots build good social relationship to students? Some scientists had attempted to do experiments to prove whether (AI) educational robots can do good or bad social relationship to students. For example, Knox, W.B. el. (2012) had ever attempted to do two experiments to research whether (AI) robot educational robot can build better or worse social relationship to compare human robot. Their two experiments aim to ask how differing conditions affect a human teacher's feedback frequency and the computational agent's learned performance. The first experiment considers the impact of a self-perceived teaching role in contrast to believing one is critiquing record. The second considers whether a human trainer will give more frequent feedback if the agent acts less (i.e. choosing actions believed to be worse). When the trainer's recent feedback frequency decreases. From the results of those experiments, they draw three main conclusions that inform the design of agents. More broadly, these two studies indicate as early examples of a nascent technique of using agents as highly specifiable social entities in experiments on human behavior. Thus, it implies (AI) educational robots have ability to learn human teacher to teach students in good social relationship learning environment with students. Even, (AI) educational robots can build better learning relationship to compare human teachers between students, it seems (AI) robots have attractive ability t raise student individual learning interest, after which can applied to assist teachers to teach whose students in classrooms or lecture halls or online classroom channels.Other scientist had ever attempted to do experiments about " reinforcement learning" (RL) to research how result of interactive supervisory input between human teacher and both robot and software agents relationship. M. Mataric (1997) attempted to do one experiment concerns that reinforcement learning is designed for interactive supervisory input from a human teacher, several works in both robot and software agents have adapted it for human input by letting a human trainer control the reward signal. He aimed to examine the assumption, namely that the human-given reward is compatible with the traditionanl RL reward signal. He described an experimental platform with a simulated RL robot and present an analysis of real time human teaching behavior found in a study in which untrained subjects taught the robot to perform a new task. For the experiment, who reported three main observations on how people administer feedback when teaching a robot a task through reinforcement learning : (a) they use the reward channel not only for feedback, but also for future directed guidance, (b) they have a positive bias to their feedback, possibly using the signal as a motivational channel, and (c) they change their behavior as they develop a mental model of the robotic learner. Physics of Data Science and Machine Learning links fundamental concepts of physics to data science, machine learning and artificial intelligence for physicists looking to integrate these techniques into their work. This book is written explicitly for physicists, marrying quantum and statistical mechanics with modern data mining, data science, and machine learning. It also explains how to integrate these techniques into the design of experiments, whilst exploring neural networks and machine learning building on fundamental concepts of statistical and quantum mechanics. This book is a self-learning tool for physicists looking to learn how to utilize data science and machine learning in their research. It will also be of interest to computer scientists and applied mathematicians, alongside graduate students looking to understand the basic concepts and foundations of data science, machine learning, and artificial intelligence. Although specifically written for physicists, it will also help provide non-physicists with an opportunity to understand the fundamental concepts from a physics perspective to aid the development of new and innovative machine learning and artificial intelligence tools. Key features:

Introduces the design of experiments and digital twin concepts in simple lay terms for physicists to understand, adopt, and adapt. Free from endless derivations, instead equations are presented and explained strategically and explain why it is imperative to use them and how they will help in the task at hand. Illustrations and simple explanations help readers visualize and absorb the difficult to understand concepts. Ijaz A. Rauf is Adjunct Professor at the School of Graduate Studies, York University, Toronto, Canada. He is also an Associate Researcher at Ryerson University, Toronto, Canada and President of the Eminent-Tech Corporation, Bradford, ON, Canada. The "intelligence" of traditional artificial intelligence systems is notoriously narrow and inflexible--incapable of adapting to the constantly changing circumstances of the real world. Although traditional artificial intelligence systems can be successful in narrowly prescribed domains, they are inappropriate for dynamic, complex domains, such as autonomous robot navigation.**This book proposes an alternative methodology for designing intelligent systems based on a model of intelligence as adaptive behavior. The author describes an experiment in computational neuroethology--the computer modeling of neuronal control of behavior--in which the nervous system for an artificial insect is modeled. The experiment demonstrates that simple, complete intelligent agents are able to cope with complex, dynamic environments--suggesting that adaptive models of intelligence, based on biological bases of adaptive behavior, may prove to be very useful in the design of intelligent, autonomous systems. Provides a lucid critique of traditional artificial intelligence research programs Presents new methodology for the construction autonomous agents, which has implications for mobile robotics Of interest to researchers in a variety of fields: artificial intelligence, neural networks, robotics, cognitive science, and neuroscience Machine learning process technologies usher new questions regarding their potential complementarity with existing human capital. Within the context of the US Patent and Trademark Office examination process, our experimental framework investigates productivity differentials when workers with heterogeneous human capital interface with machine learning, relative to the older Boolean search technology. We randomly assign individuals with and without computer science and engineering (CS&E) knowledge bases to each process technology, a subset of whom are also randomly provided expert domain specific knowledge, and analyze their productivity as measured by accuracy and speed in identifying prior art relevant for patent claims adjudication. We find that, when provided with expert domain knowledge, productivity with machine learning technology is lower than Boolean technology, but these results are driven almost entirely by heterogeneous effects by those with and without computer science and engineering (CS&E) backgrounds. Specifically, tests of underlying mechanisms reveal that unlocking superior prediction from machine learning requires CS&E skills. Further, participants lacking these skills are able to compensate for more imprecise information from Boolean searches through superior reading and information sifting skills. Our study contributes to literature streams on artificial intelligence, endogenous technological change, and strategic management of the pace of technological substitution by providing insights on complementarities between technologies and horizontally differentiated human capital. Using the Pi Camera and a Raspberry Pi board, expand and replicate interesting machine learning (ML) experiments. This book provides a solid overview of ML and a myriad of underlying topics to further explore. Non-technical discussions temper complex technical explanations to make the hottest and most complex topic in the hobbyist world of computing understandable and approachable. Machine learning, also commonly referred to as deep learning (DL), is currently being integrated into a multitude of commercial products as well as widely being used in industrial, medical, and military applications. It is hard to find any modern human activity, which has not been "touched" by artificial intelligence (AI) applications. Building on the concepts first presented in Beginning Artificial Intelligence with the Raspberry Pi, you'll go beyond simply understanding the concepts of AI into working with real machine learning experiments and applying practical deep learning concepts to experiments with the Pi board and computer vision. What you learn with Machine Learning with the Raspberry Pi can then be moved on to other platforms to go even further in the world of AI and ML to better your hobbyist or commercial projects. What You'll Learn Acquire a working knowledge of current ML Use

the Raspberry Pi to implement ML techniques and algorithms Apply AI and ML tools and techniques to your own work projects and studies Who This Book Is For Engineers and scientists but also experienced makers and hobbyists. Motivated high school students who desire to learn about ML can benefit from this material with determination. "This book argues that computational models in behavioral neuroscience must be taken with caution, and advocates for the study of mathematical models of existing theories as complementary to neuro-psychological models and computational models"-- For man artificial intelligence symbiosis it is important moving activity control. It is importantly calculate moving activity forecast and important dependence. Symbiosis becomes not only desired but required. Artificial intelligence and BASIC. Game-playing programs. Problem-solving programs. Programs thet reason. Computer analysis of arguments. Computer verse. Computer-generated text. Natural-language processing. Expert systems. Blue sky projects. BASIC keywords. Checksum generator and checksum tables. Presents how to conduct interesting artificial intelligence experiments with a small computer and BASIC language. In a world where technology has advanced beyond our wildest dreams, a revolutionary new form of art has emerged - images created by artificial intelligence. These incredible creations explore alternate realities, allowing us to glimpse into the infinite possibilities of the universe. This book is a collection of these incredible images, each one exploring a different "what if" scenario. From the silly to the profound, each image invites us to consider the implications of these alternate realities and how they might impact our own lives. Through the eyes of the AI, we see a world where superheroes are obese, where Wes Anderson directs a Batman movie, and where the impossible becomes possible. As we journey through this collection of images, we are invited to wonder and to dream, to consider the endless possibilities of the universe and to ask ourselves, "what if?" However, with great power comes great responsibility. As we continue to explore the possibilities of AI-generated images, we must also consider the potential dangers they pose. From deepfakes to fake news, these images have the power to deceive and manipulate. This book serves as a cautionary tale, highlighting the potential dangers of AI-generated images and urging readers to think critically about the images they encounter in their daily lives. Let us not be fooled by the seductive allure of technology, and instead strive for a world where truth and integrity are upheld above all else. This Introduction was completely written by A.I. This book provides a wide-ranging overview of artificial intelligence (AI), machine learning (ML) and deep learning (DL) algorithms in ophthalmology. Expertly written chapters examine AI in age-related macular degeneration, glaucoma, retinopathy of prematurity and diabetic retinopathy screening. AI perspectives, systems and limitations are all carefully assessed throughout the book as well as the technical aspects of DL systems for retinal diseases including the application of Google DeepMind, the Singapore algorithm, and the Johns Hopkins algorithm. Artificial Intelligence in Ophthalmology meets the need for a resource that reviews the benefits and pitfalls of AI, ML and DL in ophthalmology. Ophthalmologists, optometrists, eye-care workers, neurologists, cardiologists, internal medicine specialists, AI engineers and IT specialists with an interest in how AI can help with early diagnosis and monitoring treatment in ophthalmic patients will find this book to be an indispensable guide to an evolving area of healthcare technology. Psychological research (AI) education social robots and students relationshipWhether can (AI) educational robots build good social relationship to students? Some scientists had attempted to do experiments to prove whether (AI) educational robots can do good or bad social relationship to students. For example, Knox, W.B. el. (2012) had ever attempted to do two experiments to research whether (AI) robot educational robot can build better or worse social relationship to compare human robot. Their two experiments aim to ask how differing conditions affect a human teacher's feedback frequency and the computational agent's learned performance. The first experiment considers the impact of a self-perceived teaching role in contrast to believing one is critiquing record. The second considers whether a human trainer will give more frequent feedback if the agent acts less (i.e. choosing actions believed to be worse). When the trainer's recent feedback frequency decreases. From the results of those experiments, they draw three main conclusions that inform the design of agents. More broadly, these two studies indicate as early examples of a nascent technique of using

agents as highly specifiable social entities in experiments on human behavior. Thus, it implies (AI) educational robots have ability to learn human teacher to teach students in good social relationship learning environment with students. Even, (AI) educational robots can build better learning relationship to compare human teachers between students, it seems (AI) robots have attractive ability t raise student individual learning interest, after which can applied to assist teachers to teach whose students in classrooms or lecture halls or online classroom channels.Other scientist had ever attempted to do experiments about " reinforcement learning" (RL) to research how result of interactive supervisory input between human teacher and both robot and software agents relationship. M. Mataric (1997) attempted to do one experiment concerns that reinforcement learning is designed for interactive supervisory input from a human teacher, several works in both robot and software agents have adapted it for human input by letting a human trainer control the reward signal. He aimed to examine the assumption, namely that the human-given reward is compatible with the traditional RL reward signal. He described an experimental platform with a simulated RL robot and present an analysis of real time human teaching behavior found in a study in which untrained subjects taught the robot to perform a new task. For the experiment, who reported three main observations on how people administer feedback when teaching a robot a task through reinforcement learning : (a) they use the reward channl not only for feedback, but also for future directed guidance, (b) they have a positive bias to their feedback, possibly using the signal as a motivational channel, and (c) they change their behavior as they develop a mental model of the robotic learner.Thus, whose experiment concluded that machine learning shall play a significant role in the development of robotic assistants that operate in human learning environment. (e.g. homes, schools, hospitals, offices). Considering the difficulty of hard-coding all information need for the robot to play a long term role in dynamic world, human users will need to be able to easily teach such robots. However, various works have addressed some of hard problems robots face when learning in the real-word. Artificial Intelligence in Drug Discovery aims to introduce the reader to AI and machine learning tools and techniques, and to outline specific challenges including designing new molecular structures, synthesis planning and simulation. Made-Up Minds addresses fundamental questions of learning and concept invention by means of an innovative computer program that is based on the cognitive-developmental theory of psychologist Jean Piaget. Drescher uses Piaget's theory as a source of inspiration for the design of an artificial cognitive system called the schema mechanism, and then uses the system to elaborate and test Piaget's theory. The approach is original enough that readers need not have extensive knowledge of artificial intelligence, and a chapter summarizing Piaget assists readers who lack a background in developmental psychology. The schema mechanism learns from its experiences, expressing discoveries in its existing representational vocabulary, and extending that vocabulary with new concepts. A novel empirical learning technique, marginal attribution, can find results of an action that are obscure because each occurs rarely in general, although reliably under certain conditions. Drescher shows that several early milestones in the Piagetian infant's invention of the concept of persistent object can be replicated by the schema mechanism. Machine learning methods have lowered the cost of exploring new structures of unknown compounds, and can be used to predict reasonable expectations and subsequently validated by experimental results. As new insights and several elaborative tools have been developed for materials science and engineering in recent years, it is an appropriate time to present a book covering recent progress in this field. Searchable and interactive databases can promote research on emerging materials. Recently, databases containing a large number of high-quality materials properties for new advanced materials discovery have been developed. These approaches are set to make a significant impact on human life and, with numerous commercial developments emerging, will become a major academic topic in the coming years. This authoritative and comprehensive book will be of interest to both existing researchers in this field as well as others in the materials science community who wish to take advantage of these powerful techniques. The book offers a global spread of authors, from USA, Canada, UK, Japan, France, Russia, China and Singapore, who are all world recognized experts in their separate areas. With

content relevant to both academic and commercial points of view, and offering an accessible overview of recent progress and potential future directions, the book will interest graduate students, postgraduate researchers, and consultants and industrial engineers. This open access book brings out the state of the art on how informatics-based tools are used and expected to be used in nanomaterials research. There has been great progress in the area in which “big-data” generated by experiments or computations are fully utilized to accelerate discovery of new materials, key factors, and design rules. Data-intensive approaches play indispensable roles in advanced materials characterization. "Materials informatics" is the central paradigm in the new trend. "Nanoinformatics" is its essential subset, which focuses on nanostructures of materials such as surfaces, interfaces, dopants, and point defects, playing a critical role in determining materials properties. There have been significant advances in experimental and computational techniques to characterize individual atoms in nanostructures and to gain quantitative information. The collaboration of researchers in materials science and information science is growing actively and is creating a new trend in materials science and engineering.