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### Character and Community Development Hodder Murray

A description of perturbation-based methods developed in machine learning to augment novel optimization methods with strong statistical guarantees. In nearly all machine learning, decisions must be made given current knowledge. Surprisingly, making what is believed to be the best decision is not always the best strategy, even when learning in a supervised learning setting. An emerging body of work on learning under different rules applies perturbations to decision and learning procedures. These methods provide simple and highly efficient learning rules with improved theoretical guarantees. This book describes perturbation-based methods developed in machine learning to augment novel optimization methods with strong statistical guarantees, offering readers a state-of-the-art overview. Chapters address recent modeling ideas that have arisen within the perturbations framework, including Perturb & MAP, herding, and the use of neural networks to map generic noise to distribution over highly structured data. They describe new learning procedures for perturbation models, including an improved EM algorithm and a learning algorithm that aims to match moments of model samples to moments of data. They discuss understanding the relation of perturbation models to their traditional counterparts, with one chapter showing that the perturbations viewpoint can lead to new algorithms in the traditional setting. And they consider perturbation-based regularization in neural networks, offering a more complete understanding of dropout and studying perturbations in the context of deep neural networks.

### Transforming Trajectories for Women of Color in Tech World Scientific

Describes recent academic and industrial applications of topic models with the goal of launching a young researcher capable of building their own applications of topic models.

### The Tools of Mathematical Reasoning Springer

This textbook explains Deep Learning Architecture, with applications to various NLP Tasks, including Document Classification, Machine Translation, Language Modeling, and Speech Recognition. With the widespread adoption of deep learning, natural language processing (NLP), and speech applications in many areas (including Finance, Healthcare, and Government) there is a growing need for one comprehensive resource that maps deep learning techniques to NLP and speech and provides insights into using the tools and libraries for real-world applications. Deep Learning for NLP and Speech Recognition explains recent deep learning methods applicable to NLP and speech, provides state-of-the-art approaches, and offers real-world case studies with code to provide hands-on experience. Many books focus on deep learning theory or deep learning for NLP-specific tasks while others are cookbooks for tools and libraries, but the constant flux of new algorithms, tools, frameworks, and libraries in a rapidly evolving landscape means that there are few available texts that offer the material in this book. The book is organized into three parts, aligning to different groups of readers and their expertise. The three parts are: Machine Learning, NLP, and Speech Introduction The first part has three chapters that introduce readers to the fields of NLP, speech recognition, deep learning and machine learning with basic theory and hands-on case studies using Python-based tools and libraries. Deep Learning Basics The five chapters in the second part introduce deep learning and various topics that are crucial for speech and text processing, including word embeddings, convolutional neural networks, recurrent neural networks and speech recognition basics. Theory,

practical tips, state-of-the-art methods, experimentations and analysis in using the methods discussed in theory on real-world tasks. Advanced Deep Learning Techniques for Text and Speech The third part has five chapters that discuss the latest and cutting-edge research in the areas of deep learning that intersect with NLP and speech. Topics including attention mechanisms, memory augmented networks, transfer learning, multi-task learning, domain adaptation, reinforcement learning, and end-to-end deep learning for speech recognition are covered using case studies.

### Educational Psychology Crown

There is widespread agreement that schools should contribute to the moral development and character formation of their students. In fact, 80% of US states currently have mandates regarding character education. However, the pervasiveness of the support for moral and character education masks a high degree of controversy surrounding its meaning and methods. The purpose of this handbook is to supplant the prevalent ideological rhetoric of the field with a comprehensive, research-oriented volume that both describes the extensive changes that have occurred over the last fifteen years and points forward to the future. Now in its second edition, this book includes the latest applications of developmental and cognitive psychology to moral and character education from preschool to college settings, and much more.

### Helping Children Learn Mathematics Routledge

Former Head of the Singapore Civil Service Mr Lim Siang Guan now shares his diverse experiences and fresh insights on leadership in his exclusive new book, The Leader, The Teacher & You. As a former Permanent Secretary in ministries, including the Ministry of Defence, the Prime Minister's Office and the Ministry of Finance, and former chairman of the Inland Revenue Authority of Singapore and the Singapore Economic Development Board, the indefatigable public servant has contributed greatly to Singapore's success, introducing innovative policies and practices at each turn, which have greatly enhanced drive and performance across the board. Most notably, he is known for his pursuit of excellence, especially in spearheading the Public Service for the 21st Century (PS21) movement, to develop organizational excellence. From Singapore's early years of government to its emergence as a prosperous metropolis, Lim has served the nation tirelessly through the years. In The Leader, The Teacher & You, Lim puts forth a fresh take on the notion of leadership as other-centered, with the focus on enabling others to be the best they can be. This noble vision of leadership is elaborated and built upon through the sharing of his experiences, in particular the memorable lessons and deep-seated convictions he has had while serving under Mr Lee Kuan Yew, Singapore's first Prime Minister, and Dr Goh Keng Swee, Singapore's First Deputy Prime Minister. Different types of leadership, such as personal and position leadership are touched upon as the author encourages leaders to take an active role in empowering those they lead and spurring them on to excellence. Coming from a man who has helmed many distinguished organizations, Mr Lim's insights on core values essential for organizational excellence are also not to be missed. The book offers practical and down-to-earth advice for leaders in all walks of life. For leaders who genuinely care for the people they lead and hope to make a difference in their lives, this book will be a crucial guide. Contents: The Teacher: My Teachers Opportunities and Obligations Learning by Doing Systems for Success Governance and PS21 Culture and Values The Leader: Leadership The Pursuit of Excellence Position Leadership Personal Leadership Challenges: Be Yourself Be the Best That You Can Be Build Your Life with Pride and Dignity Learn by Doing Think ... and Think Again Pursue Excellence Constantly Learn to be a Part of an Orchestra Constantly Prepare for the Future Know Where You Want to Get to Choose to See the Best in Others Empathise with Others Believe that There is a Better Way Readership: Professional, academic, student and lay public interested in the topic of leadership and governance. Key Features: The book is written by a prominent author, the former head

of the Singapore Civil Service, who served in government under the founding fathers of Singapore, and lived through the economic and social transformation of Singapore from independence. The book introduces a new take on leadership ("other-centred leadership") and excellence ("being the best you can be"). The book provides new insight into the foundational beliefs and values that make for strong nations and organizations, where success and survival are two sides of the same coin. Keywords: Leader; Teacher; Leadership; Potential; Influence; Best; PS21. Reviews: "Everyone — regardless of profession — will benefit from reading this uniquely designed and highly original book. It is full of human insights, and it has a deep understanding of successful leadership, an appreciation of selflessness as the key to our collective future, an awareness of history's relevance to our lives and an unflinching emphasis on excellence. Siang Guan Lim is one of the most outstanding public servants in any country, and after finishing this book, you will know why." Senator Bill Bradley Former U.S. Senator and a Managing Director at Allen & Co. United States of America "The Leader, The Teacher & You is a riveting and thoughtful study on leadership based on theory, principles, and experience by a former Head of the Civil Service and one of Singapore's most successful and admired public servants, Siang Guan Lim. It should be read by every student of politics and public policy, and anyone who aspires to play a leadership role. The book which as the author says is 'part biography, part commentary, and part exposition,' is loaded with insights into how to work with people, deal with reality, motivate an organization, achieve results, anticipate change, and ensure relevance of the organization. For those who have long puzzled over how Singapore has been able to achieve so much with so little and in short time, it is public servants such as Siang Guan Lim who have made the partnership between the civil service and the elected politicians so fruitful. Through his fascinating account of how he started in his first job as an engineer in the Sewerage Department, went on to be the Principal Private Secretary to Prime Minister Lee Kuan Yew, worked with Deputy Prime Minister and Minister of Defence Dr Goh Keng Swee, and became successively Permanent Secretary of Defence, Education, and Finance, he recounts the crucial mentorship and inspiration provided by Singapore's leaders. He thoroughly examines what true leadership is all about. Lim moved on to become Chairman of Singapore's Economic Development Board and then Group President of GIC Private Limited, the wealth fund of Singapore. I have not read such a clear analysis of the function of leadership written so succinctly and in such practical terms. It should be on the required reading list of university courses not only in Singapore, but major universities everywhere." Professor Chan Heng Chee Chairman, Lee Kuan Yew Centre for Innovative Cities Singapore University of Technology and Design Singapore "The Leader, The Teacher & You makes us aware that what we do is not just for ourselves, but also for future generations. It is full of a wisdom born of a vast experience and a propensity to take the long view, while remaining acutely relevant for the immediate. Siang Guan Lim is the consummate teacher and role-models the title of the book. While there are suggestions on how to skim through selectively, I would encourage readers to read the whole book to get the true gist of the thinking that has helped to make civil servants people that count in our nation." Mrs Belinda Charles Dean, Academy of Principals Singapore "A remarkable book ... after I started reading it I simply couldn't put it down. It has great insights, is fun to read, and deserves to be widely read. It is full of practical wisdom for a wide range of people — from full time mums to business leaders. It sets out a framework for leaders based on values and culture, but also on lessons learned by having to take tough decisions. Siang Guan Lim had an outstanding career in the development of Singapore. The ability, motivation, and vision of the author and his colleagues are clearly one reason why Singapore and Lee Kuan Yew were so successful. Because of this, the book is a great insight to understanding the phenomenon of Singapore." Lord Griffiths of Fforestfach Vice Chairman, Goldman Sachs International UK "Siang Guan Lim has led and managed at the most senior levels of the Singaporean government. Any leader would love to have him at his/her side, advising, counselling, provoking, and reminding. We cannot have him with us in person, but we do have this book that extracts the lessons that he has garnered from his many years of experience. We are fortunate that he has chosen to share his wisdom in writing. I have used some of his wisdom in my Harvard Kennedy School course on Effective Implementation for more than ten years. It has stood the test of time. Now, with the advent of the book, I will borrow even more from him. My students and I are grateful." Mr Francis Hartmann Adjunct Lecturer in Public Policy and Originator of the Kennedy School course on Effective Implementation Harvard Kennedy School of Government USA "Academics often think of themselves as being like monks in a monastery, each person being

responsible only for themselves and advancing their own careers. This book by Siong Guan Lim shows what real leadership can do to collectively achieve far more than can be done individually. This book contains the lessons and reflections of an outstanding practitioner of the art of leadership. Siong Guan Lim served in many senior positions of the Singapore Civil Service with great distinction and effectiveness. The fact that he was moved repeatedly from one senior position to another is a testament to his ability. In a society dedicated to promotion on the basis of merit, he was clearly meritorious. The book contains many important lessons and challenges based on what the author has learned and practiced himself. As he points out himself, the true testament of a leader is to look at what remains after he is gone. By that measure he did exceptionally well since the Singaporean public service and Ministry of Defence are models of efficiency and effectiveness. He points out that organizations need to change in good times and in good time so that they are not overtaken by the future. He clearly succeeded in the ones that he ran. I trust that the current leadership in these organizations will take his lessons to heart. Relative to other books I have read on leadership, this is one of the best. It is full of practical wisdom, insights and challenges. The focus on values as critical is what I have observed in the organizations I have led. I could not put it down once I started reading it. I would put it as a must read for any leader of an organization of any size. I certainly intend to use it in my leadership challenges.” Professor Daniel Hastings Cecil and Ida Green Education Professor of Aeronautics and Astronautics and Engineering Systems Massachusetts Institute of Technology (MIT), and Director/ Chief Executive Officer of Singapore-MIT Alliance for Research and Technology United States of America “This book is truly unique: it is written and packaged like the numerous self-help books on leadership with tips and challenges, but its objective is not to teach someone how to get ahead and be successful by learning leadership techniques. At its heart is a simple and yet profound message — that to lead, one has to inspire people to aspire beyond themselves. Messages like ‘at the heart of every human being is a desire for meaning and purpose in life’ is a call for true values-based leadership, and a selflessness that is reflected by the book’s fundamental premise: to be a good leader, one has to be a great teacher. Through examples from his own very public record of service to the nation and written in a way that is very accessible to young people, Siong Guan Lim is himself a teacher-leader. The one message that resonates through the book is his observation that ‘time passes and people die, but principles and values are what live on.’ Young Singaporeans should absorb the book’s messages into their daily lives, and by so doing they will become the selfless teacher-leaders, which Siong Guan Lim is the best example of.” Mr Ho Kwon Ping and Ms Claire Chiang Founders, Banyan Tree Hotels and Resorts Singapore “We live in a wicked world. The conventional wisdom is that, in order to succeed, one has to be ruthless and unprincipled. Siong Guan Lim’s extraordinary success is proof that a man with deep religious convictions and high moral principles can be a successful leader. What is Siong Guan Lim’s leadership style? He is a leader with a tough mind and a warm heart, a leader who teaches and develops those who are members of his team. This is a wise and inspiring book.” Professor Tommy Koh Chairman, Centre for International Law, National University of Singapore Singapore “As a life-long student of philosophy, I have been struck how scarce wisdom is in our world, even though it has been revered throughout the ages. This is why Siong Guan Lim’s book is special. It is probably one of the wisest books I have read about the Singapore experience. At the same time, its principles have universal applicability. Hence, I have no doubt that every reader will benefit from reading it. And the world will become a better place if his wise insights are universally applied.” Professor Kishore Mahbubani Dean of the Lee Kuan Yew School of Public Policy, National University of Singapore, and author of *The Great Convergence: Asia, the West, and the Logic of One World* Singapore “Siong Guan Lim’s book is a fascinating and uplifting read. He evolves an original exposition on the many facets of leadership from his more than 30 years of distinguished public service to Singapore. I recommend it as essential reading for managers be they placed in the private or public sector. Of greatest relevance to me personally was ‘Part I: The Teacher’ culminating in the chapter on ‘Culture and Values’ — valuable for those of us leading organizational change and development. Siong Guan’s conviction that today’s challenges demand values-driven solutions resonates sharply and persuasively. This book is organized to lovingly teach you how to lead yourself and your people to be the best that everyone can be.” Mr Philip Ng Chief Executive Officer, Far East Organization, and Chairman of the Singapore University of Technology and Design Board of Trustees Singapore “An extensive collection of great quotations and life principles by Siong Guan Lim has provided me with personal inspiration and valuable professional insights as a CEO of a company whose continued success depends on its people. As every principle is intelligently articulated, reading this book will surely motivate and encourage all leaders.” Mr Takeshi Niinami Chief Executive Officer of Lawson, Inc. Japan “The Leader, The Teacher & You: Leadership Through The Third Generation is a reflective account on teacher leadership by Siong Guan Lim, a former top civil servant with an illustrious career. Unlike many other books on the subject, he imparts thoughtful advice and perceptive lessons on leadership through easy to understand anecdotes and quotes from distinguished leaders such as Singapore’s founding fathers Mr Lee Kuan Yew and the late Dr Goh Keng Swee. This is an essential read for anyone looking to make a positive impact in the lives of others, regardless of age, background, or occupation. His advice is applicable to people from all walks of life, whether one is a civil servant, a business leader or a student.” Dr Stephen Riady Executive Chairman OUE Limited Singapore “This book captures much of what is important in life from a leadership

perspective. Having lived in Singapore and having been a regular visitor since the early 1990’s, I have added much to my understanding of why the country has been so successful. A country run by leaders at all levels who exhibit the aspects of great leadership captured here, who really are ‘catalysts for change,’ and who never stop trying to be the best they can be, has every reason to be successful ... and this works in the private sector too!” Mr John G Rice Vice Chairman, General Electric, and President & Chief Executive Officer of GE Global Growth and Operations USA “This is an extraordinarily valuable book. Siong Guan Lim and Joanne Lim have managed to do the unusual, which is to create a narrative that is both educational and readable. The writers have elegantly drawn out important experiences and learnings from Siong Guan’s long and varied career, and have made them memorable. But this is more than a story of a remarkable career and personal journey but the context, the development of a country whose primary asset is its people, means that the insights are endorsed by the success of a nation.” Sir John Rose Chairman, Holdingham Group, and former Chief Executive Officer, Rolls Royce Inc. UK “One of the most insightful books in German literature is the novel *The Buddenbrooks* of Thomas Mann. It describes the decline of a family. Again and again looking at dynasties or business houses, we witness the seemingly unavoidable descent from great heights of success to failure. How can this be prevented? The answer is selfless and competent leadership! The young look for role models and guidance, which can only be provided by elders who by their achievements and their life show them that there are lofty goals worth striving for. Read this book for ideas and ideals.” Mr Urs Schoettli Consultant on Asian Affairs and former Asia Correspondent of *Neue Zürcher Zeitung* (Switzerland) in Beijing, Hong Kong, Delhi, and Tokyo “Siong Guan Lim has been at the helm of many organizations critical in the transformation of Singapore into an economic powerhouse, from the civil service to the Economic Development Board to GIC, the fund manager for Singapore’s foreign reserves. As autobiographical as it is motivational, *The Leader, the Teacher, and You* is a must-read for executives, public servants, and students of East Asian development. Yet the wisdom of its general insights, as well as the humility with which they are delivered, will be an inspiration for any reader.” Dr Toni Schönenberger Chief Executive Officer, UBS Wolfsberg, and Chairman, stars Foundation Board Switzerland “The transformation of Singapore has often been credited to the leadership of its succession of Prime Ministers. However, behind them are other leaders who do the actual grunt work and make things happen. This book tells the remarkable story of one such man, Siong Guan Lim, the son of a taxi driver, starting his career as a sewerage engineer and rising to be the Head of the Civil Service, having served as Principal Private Secretary to the Prime Minister, as well as Permanent Secretary for the Defence, Education, and Finance Ministries along the way. And today he sits as Group President of one of the largest global sovereign wealth funds. There are fascinating insights into the way he led innovative changes in the government departments he served. After three decades, there are countless nuggets of wisdom here for us to learn from. There are many things that I admire about Siong Guan — his appetite for learning, courage to accept new appointments, his ability to lead wholesale management changes, and so on. But most of all I admire his humility, his empathy, and his ability to encourage and inspire others to do the best they can. Reading his story made me wish I had worked for such a leader and mentor.” Dato Dr Kim Tan Chairman, SpringHill Management Ltd. UK “Siong Guan Lim was Head of the well-known Singapore Civil Service. His book is full of aphorisms that are aimed primarily at the empowerment of people in a large complex organization and the role of an enlightened leadership. He ends the book with a quote from Laozi — ‘As for the best leaders, people do not notice their existence.’ The entire civil service of Singapore could do very well for themselves, but more importantly for Singaporeans, by taking a refresher course through reading this book. Civil servants today must take the risks of constructive change. The lessons of the book could prevent the stasis that dominant ruling parties undergo as witnessed with the KMT in Taiwan and the LDP in Japan.” Dr Tommy Tan Chief Executive Officer, TC Capital Singapore “One learns how to do something, but one can also do in order to learn. This is a book by a dedicated Singapore civil servant who did both by following able leaders who were also great teachers. Drawing lessons from a lifetime’s work, he offers advice to all those who wish to succeed in serving their society with integrity.” Professor Wang Gungwu Chairman of the East Asian Institute and University Professor, National University of Singapore Singapore “This book was written by my good friend Siong Guan Lim based on his observations and experience in his public career since 1969. It reflects his lifestyle, wisdom, life, and beliefs. With keen insight, he describes the behaviour of human groups, for example, by using the image of GEESE in a thoughtful and persuasive way. While each society may need a slightly different type of leader, there are some basic requirements that make a superior leader. Some leaders, while they are leading their people, are brilliant and exemplary with a clear vision for the future. But once they leave, the group may face an abrupt slowdown or even chaos. Siong Guan clearly states that such leaders are not the best ones. Not leading from the front, nor from the side, nor from behind, but ‘from within’ is what makes the best leader, he writes. There is so much truth in his statement that the leader must seek to be like the teacher, where the true measure of success is how well the student can surpass the teacher. Siong Guan and I are involved in sharing ideas on lessons for leaders of the future generation. I find his thoughts and contributions to be highly original and instructive.” Mr Hiroshi Watanabe Chief Executive Officer/ Executive Managing Director Japan Bank for International Co-operation Japan “Siong Guan Lim has written an outstanding book, and he has done this because he is an outstanding

man. Lim has been on the frontlines of Singapore’s rapid development over the past forty years providing vital leadership in defence, education, finance, the Prime Minister’s Office, and as Head of the Civil Service. He captures the leadership lessons from his mentors — some of the founding fathers of Singapore — and the leadership lessons born of direct experience building a world-class public service. Few practitioners in the art of leadership and governance have had the experience that Lim has had, and few would be able to reflect on that experience and generate such an amazing guidebook for anyone serious about leadership and change. If you want to raise your institution, your government, or your nation to the next level of performance, then this book is for you.” Mr Dean Williams Lecturer in Public Policy, Center for Public Leadership Harvard Kennedy School of Government USA “The dearth in courageous moral leadership in our world today has left many political and economic institutions weakened and compromised. In this book, Siong Guan offers us tried and tested truths on leadership that he personally embodied throughout his time with the Singaporean Government Civil Service, Economic Development Board, and GIC. We have much to learn from him!” Tan Sri Dr Francis Yeoh Managing Director YTL Group of Companies Malaysia “An invaluable guide to the heart, soul, and guts of leadership from that rarest of breeds: a true Servant Leader who, in the words of Singapore’s Prime Minister, ‘established an unbroken record of understanding Singapore’s challenges and developing a vision of how the Public Service should respond to these challenges’ over an outstanding, 44-year career directly managing key areas of our nation’s tumultuous and miraculous transformation. Having worked under his teacher-leader mentorship, I can testify to both the personal genuineness and organizational effectiveness of Mr Lim’s remarkable mastery of that most difficult of management arenas: leading excellence, innovation, and change from the front as a boss, from the side as a comrade, from behind as a mentor, and finally from within as a lasting source of inspiration.” Mr Yeoh Lam Keong Social commentator and former GIC Chief Economist Singapore “Although *The Leader, the Teacher & You* relates Lim’s 37 years as a civil servant in Singapore, the lessons apply universally to all sorts of readers. Hong Kong readers, including businessmen, should find useful lesson in this book.” Sunday Morning Post, Hong Kong

*Educational Psychology for Learning and Teaching* Springer Nature

This book provides a one-stop resource for mathematics educators, policy makers and all who are interested in learning more about the why, what and how of mathematics education in Singapore. The content is organized according to three significant and closely interrelated components: the Singapore mathematics curriculum, mathematics teacher education and professional development, and learners in Singapore mathematics classrooms. Written by leading researchers with an intimate understanding of Singapore mathematics education, this up-to-date book reports the latest trends in Singapore mathematics classrooms, including mathematical modelling and problem solving in the real-world context.

### **Fostering Critical Thinking** Houghton Mifflin

A theoretical study dealing chiefly with matters of definition and clarification of terms and concepts involved in using Darwinian notions to model social phenomena.

*Darwin’s Conjecture* Jossey-Bass

New edition of our best-selling IGCSE Mathematics textbook

**IGCSE Mathematics** Wilson Raj Perumal

Dr. Greg Zacharias, former Chief Scientist of the United States Air Force (2015-18), explores next steps in autonomous systems (AS) development, fielding, and training. Rapid advances in AS development and artificial intelligence (AI) research will change how we think about machines, whether they are individual vehicle platforms or networked enterprises. The payoff will be considerable, affording the US military significant protection for aviators, greater effectiveness in employment, and unlimited opportunities for novel and disruptive concepts of operations. *Autonomous Horizons: The Way Forward* identifies issues and makes recommendations for the Air Force to take full advantage of this transformational technology. *Inside the Black Box* MIT Press

The annual conference on Neural Information Processing Systems (NIPS) is the flagship conference on neural computation. It draws preeminent academic researchers from around the world and is widely considered to be a showcase conference for new developments in network algorithms and architectures. The broad range of interdisciplinary research areas represented includes computer science, neuroscience, statistics, physics, cognitive science, and many branches of engineering, including signal processing and control theory. Only about 30 percent of the papers submitted are accepted for presentation at NIPS, so the quality is exceptionally high. These proceedings contain all of the papers that were presented.

*The Immortal Life of Henrietta Lacks* American Mathematical Soc.

Demand for tech professionals is expected to increase substantially over the next decade, and increasing the number of women of color in tech will be critical to building and maintaining a competitive workforce. Despite years of efforts to increase the diversity of the tech workforce, women of color have remained underrepresented, and the numbers of some groups of women of color have even declined. Even in cases where some groups of women of color may have higher levels of representation, data show that they still face significant systemic challenges in advancing to positions of leadership. Research evidence suggests that

structural and social barriers in tech education, the tech workforce, and in venture capital investment disproportionately and negatively affect women of color. Transforming Trajectories for Women of Color in Tech uses current research as well as information obtained through four public information-gathering workshops to provide recommendations to a broad set of stakeholders within the tech ecosystem for increasing recruitment, retention, and advancement of women of color. This report identifies gaps in existing research that obscure the nature of challenges faced by women of color in tech, addresses systemic issues that negatively affect outcomes for women of color in tech, and provides guidance for transforming existing systems and implementing evidence-based policies and practices to increase the success of women of color in tech.

**Rodent Control** Springer Nature

Results from national and international assessments indicate that school children in the United States are not learning mathematics well enough. Many students cannot correctly apply computational algorithms to solve problems. Their understanding and use of decimals and fractions are especially weak. Indeed, helping all children succeed in mathematics is an imperative national goal. However, for our youth to succeed, we need to change how we're teaching this discipline. Helping Children Learn Mathematics provides comprehensive and reliable information that will guide efforts to improve school mathematics from pre-kindergarten through eighth grade. The authors explain the five strands of mathematical proficiency and discuss the major changes that need to be made in mathematics instruction, instructional materials, assessments, teacher education, and the broader educational system and answers some of the frequently asked questions when it comes to mathematics instruction. The book concludes by providing recommended actions for parents and caregivers, teachers, administrators, and policy makers, stressing the importance that everyone work together to ensure a mathematically literate society.

**The Democratization of Artificial Intelligence** Praeger Pub Text

Program synthesis is the task of automatically finding a program in the underlying programming language that satisfies the user intent expressed in the form of some specification. Since the inception of artificial intelligence in the 1950s, this problem has been considered the holy grail of Computer Science. Despite inherent challenges in the problem such as ambiguity of user intent and a typically enormous search space of programs, the field of program synthesis has developed many different techniques that enable program synthesis in different real-life application domains. It is now used successfully in software engineering, biological discovery, compute-aided education, end-user programming, and data cleaning. In the last decade, several applications of synthesis in the field of programming by examples have been deployed in mass-market industrial products. This monograph is a general overview of the state-of-the-art approaches to program synthesis, its applications, and subfields. It discusses the general principles common to all modern synthesis approaches such as syntactic bias, oracle-guided inductive search, and optimization techniques. We then present a literature review covering the four most common state-of-the-art techniques in program synthesis: enumerative search, constraint solving, stochastic search, and deduction-based programming by examples. It concludes with a brief list of future horizons for the field.

**Blue Book for the Year ...** Springer

This open access book provides an overview of the recent advances in representation learning theory, algorithms and applications for natural language processing (NLP). It is divided into three parts. Part I presents the representation learning techniques for multiple language entries, including words, phrases, sentences and documents. Part II then introduces the representation techniques for those objects that are closely related to NLP, including entity-based world knowledge, sememe-based linguistic knowledge, networks, and cross-modal entries. Lastly, Part III provides open resource tools for representation learning techniques, and discusses the remaining challenges and future research directions. The theories and algorithms of representation learning presented can also benefit other related domains such as machine learning, social network analysis, semantic Web, information retrieval, data mining and computational biology. This book is intended for advanced undergraduate and graduate students, post-doctoral fellows, researchers, lecturers, and industrial engineers, as well as anyone interested in representation learning and natural language processing.

**Synthetic Data for Deep Learning** Bantam

A comprehensive and self-contained introduction to Gaussian processes, which provide a principled, practical, probabilistic approach to learning in kernel machines. Gaussian processes (GPs) provide a principled, practical, probabilistic approach to learning in kernel machines. GPs have received increased attention in the machine-learning community over the past decade, and this book provides a long-needed systematic and unified treatment of theoretical and practical aspects of GPs in machine learning. The treatment is comprehensive and self-contained, targeted at researchers and students in machine learning and applied statistics. The book deals with the supervised-learning problem for both regression and classification, and includes detailed algorithms. A wide variety of covariance (kernel) functions are presented and their properties discussed. Model selection is discussed both from a Bayesian and a classical perspective. Many connections to other well-known techniques from machine learning and statistics are discussed, including support-vector machines, neural networks, splines, regularization networks, relevance vector machines and others. Theoretical

issues including learning curves and the PAC-Bayesian framework are treated, and several approximation methods for learning with large datasets are discussed. The book contains illustrative examples and exercises, and code and datasets are available on the Web. Appendixes provide mathematical background and a discussion of Gaussian Markov processes.

**Graphical Models, Exponential Families, and Variational Inference** The Immortal Life of Henrietta Lacks

The book contains blackline masters of stimulating activities in mathematics...

**Program Synthesis** University of Chicago Press

Calls for renewed moral education in America's schools, offering dozens of programs schools can adopt to teach students respect, responsibility, hard work, and other values that should not be left to parents to teach.

**Knowledge to Support the Teaching of Reading** transcript Verlag

The second edition of this distinctively Australian text continues to retain the hallmark features, resulting in it being the 2004 Category Winner for the 'Awards of Excellence in Educational Publishing'. This popular textbook continues to adopt a developmental focus for complex issues in teaching. As a valuable resource Educational Psychology addresses contemporary ideas in context of lifelong learning, vocational education and the dynamic use of information and communication technologies. By analysing educational psychology and the theories of development and learning this text will help you to: understand your own development and factors that have contributed to it; provide strategies to enhance the quality of your learning and motivation; guide your understanding of how learners learn and how educators can be more effective in their teaching practice; contribute to your personal philosophy of learning and teaching. If you are aspiring to become a teacher or educational psychologist this is a must have text, written by experienced and renowned practitioners with backgrounds in teaching, educational psychology and child development.

**Advances in Neural Information Processing Systems 12** MIT Press

Advances in artificial intelligence (AI) highlight the potential of this technology to affect productivity, growth, inequality, market power, innovation, and employment. This volume seeks to set the agenda for economic research on the impact of AI. It covers four broad themes: AI as a general purpose technology; the relationships between AI, growth, jobs, and inequality; regulatory responses to changes brought on by AI; and the effects of AI on the way economic research is conducted. It explores the economic influence of machine learning, the branch of computational statistics that has driven much of the recent excitement around AI, as well as the economic impact of robotics and automation and the potential economic consequences of a still-hypothetical artificial general intelligence. The volume provides frameworks for understanding the economic impact of AI and identifies a number of open research questions. Contributors: Daron Acemoglu, Massachusetts Institute of Technology Philippe Aghion, Collège de France Ajay Agrawal, University of Toronto Susan Athey, Stanford University James Bessen, Boston University School of Law Erik Brynjolfsson, MIT Sloan School of Management Colin F. Camerer, California Institute of Technology Judith Chevalier, Yale School of Management Iain M. Cockburn, Boston University Tyler Cowen, George Mason University Jason Furman, Harvard Kennedy School Patrick Francois, University of British Columbia Alberto Galasso, University of Toronto Joshua Gans, University of Toronto Avi Goldfarb, University of Toronto Austan Goolsbee, University of Chicago Booth School of Business Rebecca Henderson, Harvard Business School Ginger Zhe Jin, University of Maryland Benjamin F. Jones, Northwestern University Charles I. Jones, Stanford University Daniel Kahneman, Princeton University Anton Korinek, Johns Hopkins University Mara Lederman, University of Toronto Hong Luo, Harvard Business School John McHale, National University of Ireland Paul R. Milgrom, Stanford University Matthew Mitchell, University of Toronto Alexander Oettl, Georgia Institute of Technology Andrea Prat, Columbia Business School Manav Raj, New York University Pascual Restrepo, Boston University Daniel Rock, MIT Sloan School of Management Jeffrey D. Sachs, Columbia University Robert Seamans, New York University Scott Stern, MIT Sloan School of Management Betsey Stevenson, University of Michigan Joseph E. Stiglitz, Columbia University Chad Syverson, University of Chicago Booth School of Business Matt Taddy, University of Chicago Booth School of Business Steven Tadelis, University of California, Berkeley Manuel Trajtenberg, Tel Aviv University Daniel Trefler, University of Toronto Catherine Tucker, MIT Sloan School of Management Hal Varian, University of California, Berkeley Routledge

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