Formal Languages And Automata Peter Linz Solutions

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JFLAP - Susan H. Rodger 2006
JFLAP: An Interactive Formal Languages and Automata Package is a hands-on supplemental guide through formal languages and automata theory. JFLAP guides students interactively through many of the concepts in an automata theory course or the early topics in a compiler course, including the descriptions of algorithms JFLAP has implemented. Students can experiment with the concepts in the text and

receive immediate feedback when applying these concepts with the accompanying software. The text describes each area of JFLAP and reinforces concepts with end-of-chapter exercises. In addition to JFLAP, this guide incorporates two other automata theory tools into JFLAP: JellRap and Pate.

Principles of Programming Languages - Bruce J. MacLennan 1999
In-depth case studies of representative languages from five generations of programming language design (Fortran, Algol-60, Pascal, Ada, LISP, Smalltalk, and Prolog) are used to illustrate larger themes."--BOOK JACKET.

Introduction to Automata Theory, Languages, and Computation - John E. Hopcroft 2014
This classic book on formal languages, automata theory, and computational complexity has been updated to present theoretical concepts in a concise and straightforward manner with the increase of hands-on, practical applications. This new edition comes with Gradiance, an online assessment tool developed for computer science. Please note, Gradiance is no longer available with this book, as we no longer support this product.

Modern Applications of Automata Theory - Deepak D'Souza 2012

Theoretical Numerical Analysis - Peter Linz 2019-06-12
This concise text introduces numerical analysis as a practical, problem-solving discipline. The three-part presentation begins with the fundamentals of functional analysis and approximation theory. Part II outlines the major results of theoretical numerical analysis, reviewing product integration, approximate expansion methods, the minimization of functions, and related topics. Part III considers specific subjects that illustrate the power and usefulness of theoretical analysis. Ideal as a text for a one-year graduate course, the book also offers engineers and scientists experienced in

numerical computing a simple introduction to the major ideas of modern numerical analysis. Some practical experience with computational mathematics and the ability to relate this experience to new concepts is assumed. Otherwise, no background beyond advanced calculus is presupposed. Moreover, the ideas of functional analysis used throughout the text are introduced and developed only to the extent they are needed.

Introduction to the Theory of Computation - Michael Sipser 2012-06-27
Now you can clearly present even the most complex computational theory topics to your students with Sipser's distinct, market-leading INTRODUCTION TO THE THEORY OF COMPUTATION, 3E. The number one choice for today's computational theory course, this highly anticipated revision retains the unmatched clarity and thorough coverage that make it a leading text for upper-level undergraduate and introductory graduate students. This edition continues author Michael Sipser's well-known, approachable style with timely revisions, additional exercises, and more memorable examples in key areas. A new first-of-its-kind theoretical treatment of deterministic context-free languages is ideal for a better understanding of parsing and LR(k) grammars. This edition's refined presentation ensures a trusted accuracy and clarity that make the challenging study of computational theory accessible and intuitive to students while maintaining the subject's rigor and formalism. Readers gain a solid understanding of the fundamental mathematical properties of computer hardware, software, and applications with a blend of practical and philosophical coverage and mathematical treatments, including advanced theorems and proofs. INTRODUCTION TO THE THEORY OF COMPUTATION, 3E's comprehensive coverage makes this an ideal ongoing reference tool for those studying theoretical computing. Important

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Automata and Computability - Dexter C. Kozen 2013-11-11
These are my lecture notes from CS381/481: Automata and Computability Theory, a one-semester senior-level course I have taught at Cornell Uni versity for many years. I took this course myself in thc fall of 1974 as a first-year Ph.D. student at Cornell from Juris Hartmanis and have been in love with the subject ever sin,:e. The course is required for computer science majors at Cornell. It exists in two forms: CS481, an honors version; and CS381, a somewhat gentler paced version. The syllabus is roughly the same, but CS481 go es deeper into thc subject, covers more material, and is taught at a more abstract level. Students are encouraged to start off in one or the other, then switch within the first few weeks if they find the other version more suitaLle to their level of mathematical skill. The purpose of t.hc course is twofold: to introduce computer science students to the rieh heritage of models and abstractions that have arisen over the years; and to dew!c'p the capacity to form abstractions of their own and reason in terms of them.

Discovering Computer Science - Jessen Havill 2020-10-12
"Havill's problem-driven approach introduces algorithmic concepts in context and motivates students with a wide range of interests and backgrounds." -- Janet Davis, Associate Professor and Microsoft Chair of Computer Science, Whitman College "This book looks really great and takes exactly the approach I think should be used for a CS 1 course. I think it really fills a need in the textbook landscape." -- Marie desJardins, Dean of the College of Organizational, Computational, and Information Sciences, Simmons University "Discovering Computer Science is a refreshing departure from introductory programming texts, offering

students a much more sincere introduction to the breadth and complexity of this ever-growing field." -- James Deverick, Senior Lecturer, The College of William and Mary "This unique introduction to the science of computing guides students through broad and universal approaches to problem solving in a variety of contexts and their ultimate implementation as computer programs." -- Daniel Kaplan, DeWitt Wallace Professor, Macalester College Discovering Computer Science: Interdisciplinary Problems, Principles, and Python Programming is a problem-oriented introduction to computational problem solving and programming in Python, appropriate for a first course for computer science majors, a more targeted disciplinary computing course or, at a slower pace, any introductory computer science course for a general audience. Realizing that an organization around language features only resonates with a narrow audience, this textbook instead connects programming to students' prior interests using a range of authentic problems from the natural and social sciences and the digital humanities. The presentation begins with an introduction to the problem-solving process, contextualizing programming as an essential component. Then, as the book progresses, each chapter guides students through solutions to increasingly complex problems, using a spiral approach to introduce Python language features. The text also places programming in the context of fundamental computer science principles, such as abstraction, efficiency, testing, and algorithmic techniques, offering glimpses of topics that are traditionally put off until later courses. This book contains 30 well-developed independent projects that encourage students to explore questions across disciplinary boundaries, over 750 homework exercises, and 300 integrated reflection questions engage students in problem solving and active reading. The accompanying website — https://www.discoveringcs.net — includes more

advanced content, solutions to selected exercises, sample code and data files, and pointers for further exploration.

Mechatronic Futures - Peter Hehenberger 2016-06-10
Offering a comprehensive overview of the challenges, risks and options facing the future of mechatronics, this book provides insights into how these issues are currently assessed and managed. Building on the previously published book 'Mechatronics in Action,' it identifies and discusses the key issues likely to impact on future mechatronic systems. It supports mechatronics practitioners in identifying key areas in design, modeling and technology and places these in the wider context of concepts such as cyber-physical systems and the Internet of Things. For educators it considers the potential effects of developments in these areas on mechatronic course design, and ways of integrating these. Written by experts in the field, it explores topics including systems integration, design, modeling, privacy, ethics and future application domains. Highlighting novel innovation directions, it is intended for academics, engineers and students working in the field of mechatronics, particularly those developing new concepts, methods and ideas.

Data Communications and Networking - Behrouz A. Forouzan 2007
Annotation As one of the fastest growing technologies in our culture today, data communications and networking presents a unique challenge for instructors. As both the number and types of students are increasing, it is essential to have a textbook that provides coverage of the latest advances, while presenting the material in a way that is accessible to students with little or no background in the field. Using a bottom-up approach, Data Communications and Networking presents this highly technical subject matter without relying on complex formulas by using a strong pedagogical

approach supported by more than 700 figures. Now in its Fourth Edition, this textbook brings the beginning student right to the forefront of the latest advances in the field, while presenting the fundamentals in a clear, straightforward manner. Students will find better coverage, improved figures and better explanations on cutting-edge material. The "bottom-up" approach allows instructors to cover the material in one course, rather than having separate courses on data communications and networking

Formal Languages and Automata Theory - C.K Nagpal 2012
Theory of Automata is designed to serve as a textbook for undergraduate students of B..E, B.Tech. CSE and MCA/IT. It attempts to help students grasp the essential concepts involved in automata theory.

C++ Plus Data Structures - Nell B. Dale 2003 Computer Science

Introduction to Formal Languages, Automata Theory and Computation - Kamala Krithivasan 2009-09
Introduction to Formal Languages, Automata Theory and Computation presents the theoretical concepts in a concise and clear manner, with an in-depth coverage of formal grammar and basic automata types. The book also examines the underlying theory and principles of computation and is highly suitable to the undergraduate courses in computer science and information technology. An overview of the recent trends in the field and applications are introduced at the appropriate places to stimulate the interest of active learners.

Object-Oriented Data Structures Using Java - Nell Dale 2011-02-27
Continuing the success of the popular second edition, the updated and revised Object-Oriented Data Structures Using Java, Third Edition is sure to be an essential resource for students learning data structures using the Java programming language. It presents traditional data structures and object-oriented topics with an emphasis on

problem-solving, theory, and software engineering principles. Beginning early and continuing throughout the text, the authors introduce and expand upon the use of many Java features including packages, interfaces, abstract classes, inheritance, and exceptions. Numerous case studies provide readers with real-world examples and demonstrate possible solutions to interesting problems. The authors' lucid writing style guides readers through the rigor of standard data structures and presents essential concepts from logical, applications, and implementation levels. Key concepts throughout the Third Edition have been clarified to increase student comprehension and retention, and end-of-chapter exercises have been updated and modified. New and Key Features to the Third Edition: -Includes the use of generics throughout the text, providing the dual benefits of allowing for a type safe use of data structures plus exposing students to modern approaches. -This text is among the first data structures textbooks to address the topic of concurrency and synchonization, which are growing in the importance as computer systems move to using more cores and threads to obtain additional performance with each new generation. Concurrency and synchonization are introduced in the new Section 5.7, where it begins with the basics of Java threads. -Provides numerous case studies and examples of the problem solving process. Each case study includes problem description, an analysis of the problem input and required output, and a discussion of the appropriate data structures to use. -Expanded chapter exercises allow you as the instructor to reinforce topics for your students using both theoretical and practical questions. -Chapters conclude with a chapter summary that highlights the most important topics of the chapter and ties together related topics.

The Essence of Artificial Intelligence - Alison Cawsey 1998
This is a practical, highly-accessible introduction

to the state-of-the-art in artificial intelligence.This book demystifies artificial intelligence, making it concrete and transparent. It covers knowledge representation, inference, expert systems, natural language processing, machine learning, neural networks, agents, robots, and more. The book includes extensive self-test questions, case studies, figures, worked examples, sample algorithms and a complete glossary.For anyone interested in artificial intelligence; no prior background is required.

Introduction to Automata Theory, Formal Languages and Computation - Shyamalendu Kandar
Formal languages and automata theory is the study of abstract machines and how these can be used for solving problems. The book has a simple and exhaustive approach to topics like automata theory, formal languages and theory of computation. These descriptions are followed by numerous relevant examples related to the topic. A brief introductory chapter on compilers explaining its relation to theory of computation is also given.

Introduction to Computer Theory - Daniel I. A. Cohen 1997
This text strikes a good balance between rigor and an intuitive approach to computer theory. Covers all the topics needed by computer scientists with a sometimes humorous approach that reviewers found "refreshing". It is easy to read and the coverage of mathematics is fairly simple so readers do not have to worry about proving theorems.

Foundations of Algorithms - Richard E. Neapolitan 2015

A Concrete Introduction to Higher Algebra - Lindsay N. Childs 2012-12-04
An informal and readable introduction to higher algebra at the post-calculus level. The concepts of ring and field are introduced through study of the familiar examples of the integers and polynomials, with much emphasis placed on

congruence classes leading the way to finite groups and finite fields. New examples and theory are integrated in a well-motivated fashion and made relevant by many applications -- to cryptography, coding, integration, history of mathematics, and especially to elementary and computational number theory. The later chapters include expositions of Rabiin's probabilistic primality test, quadratic reciprocity, and the classification of finite fields. Over 900 exercises, ranging from routine examples to extensions of theory, are scattered throughout the book, with hints and answers for many of them included in an appendix.

Handbook of Formal Languages - Grzegorz Rozenberg 1997
Summary: Discusses language theory beyond linear or string models: trees, graphs, grids, pictures, computer graphics.
Problem Solving in Automata, Languages, and Complexity - Ding-Zhu Du 2004-04-05
Automata and natural language theory are topics lying at the heart of computer science. Both are linked to computational complexity and together, these disciplines help define the parameters of what constitutes a computer, the structure of programs, which problems are solvable by computers, and a range of other crucial aspects of the practice of computer science. In this important volume, two respected authors/editors in the field offer accessible, practice-oriented coverage of these issues with an emphasis on refining core problem solving skills.

Theory of Finite Automata - John Carroll 1989

Information and Coding Theory - Gareth A. Jones 2012-12-06
This text is an elementary introduction to information and coding theory. The first part focuses on information theory, covering uniquely decodable and instantaneous codes, Huffman coding, entropy, information channels, and Shannon's Fundamental Theorem. In the second part, linear algebra is used to construct

examples of such codes, such as the Hamming, Hadamard, Golay and Reed-Muller codes. Contains proofs, worked examples, and exercises.

An Introduction to Formal Languages and Automata - Peter Linz 2006
Data Structures & Theory of Computation
Heat Conduction - Latif M. Jiji 2009-07-09
This book is designed to: Provide students with the tools to model, analyze and solve a wide range of engineering applications involving conduction heat transfer. Introduce students to three topics not commonly covered in conduction heat transfer textbooks: perturbation methods, heat transfer in living tissue, and microscale conduction. Take advantage of the mathematical simplicity of o- dimensional conduction to present and explore a variety of physical situations that are of practical interest. Present textbook material in an efficient and concise manner to be covered in its entirety in a one semester graduate course. Drill students in a systematic problem solving methodology with emphasis on thought process, logic, reasoning and verification. To accomplish these objectives requires judgment and balance in the selection of topics and the level of details. Mathematical techniques are presented in simplified fashion to be used as tools in obtaining solutions. Examples are carefully selected to illustrate the application of principles and the construction of solutions. Solutions follow an orderly approach which is used in all examples. To provide consistency in solutions logic, I have prepared solutions to all problems included in the first ten chapters myself. Instructors are urged to make them available electronically rather than posting them or presenting them in class in an abridged form.

Analytical and Numerical Methods for Volterra Equations - Peter Linz 1985-01-01
Presents an aspect of activity in integral equations methods for the solution of Volterra equations for those who need to solve real-world

problems. Since there are few known analytical methods leading to closed-form solutions, the emphasis is on numerical techniques. The major points of the analytical methods used to study the properties of the solution are presented in the first part of the book. These techniques are important for gaining insight into the qualitative behavior of the solutions and for designing effective numerical methods. The second part of the book is devoted entirely to numerical methods. The author has chosen the simplest possible setting for the discussion, the space of real functions of real variables. The text is supplemented by examples and exercises.

Theory of Computer Science - K. L. P. Mishra 2006-01-01
This Third Edition, in response to the enthusiastic reception given by academia and students to the previous edition, offers a cohesive presentation of all aspects of theoretical computer science, namely automata, formal languages, computability, and complexity. Besides, it includes coverage of mathematical preliminaries. NEW TO THIS EDITION • Expanded sections on pigeonhole principle and the principle of induction (both in Chapter 2) • A rigorous proof of Kleene's theorem (Chapter 5) • Major changes in the chapter on Turing machines (TMs) – A new section on high-level description of TMs – Techniques for the construction of TMs – Multitape TM and nondeterministic TM • A new chapter (Chapter 10) on decidability and recursively enumerable languages • A new chapter (Chapter 12) on complexity theory and NP-complete problems • A section on quantum computation in Chapter 12. • KEY FEATURES • Objective-type questions in each chapter—with answers provided at the end of the book. • Eighty-three additional solved examples—added as Supplementary Examples in each chapter. • Detailed solutions at the end of the book to chapter-end exercises. The book is designed to meet the needs of the undergraduate and

postgraduate students of computer science and engineering as well as those of the students offering courses in computer applications.

Formal Languages and Automata Theory - K.V.N. Sunitha 2010

Formal Languages and Automata Theory deals with the mathematical abstraction model of computation and its relation to formal languages. This book is intended to expose students to the theoretical development of computer science. It also provides conceptual tools that practitioners use in computer engineering. An assortment of problems illustrative of each method is solved in all possible ways for the benefit of students. The book also presents challenging exercises designed to hone the analytical skills of students.

Introduction to Formal Languages - György E. Révész 2015-03-17

Covers all areas, including operations on languages, context-sensitive languages, automata, decidability, syntax analysis, derivation languages, and more. Numerous worked examples, problem exercises, and elegant mathematical proofs. 1983 edition.

Languages And Machines: An Introduction To The Theory Of Computer Science, 3/E - Thomas A. Sudkamp 2007-09

Exploring Numerical Methods - Peter Linz 2003

Advanced Mathematics

Programming Concepts and Problem Solving - Peter Linz 1983

Contains the Material Needed to Teach ACM Curriculum Course CS1 & CS2 or Other One- or Two-Term Introductory Courses Using PASCAL. Stresses Good Programming Practice & Concepts Rather Than Syntactical Details

Digital Design and Computer Architecture - Sarah Harris 2015-04-09

Digital Design and Computer Architecture: ARM Edition covers the fundamentals of digital logic

design and reinforces logic concepts through the design of an ARM microprocessor. Combining an engaging and humorous writing style with an updated and hands-on approach to digital design, this book takes the reader from the fundamentals of digital logic to the actual design of an ARM processor. By the end of this book, readers will be able to build their own microprocessor and will have a top-to-bottom understanding of how it works. Beginning with digital logic gates and progressing to the design of combinational and sequential circuits, this book uses these fundamental building blocks as the basis for designing an ARM processor. SystemVerilog and VHDL are integrated throughout the text in examples illustrating the methods and techniques for CAD-based circuit design. The companion website includes a chapter on I/O systems with practical examples that show how to use the Raspberry Pi computer to communicate with peripheral devices such as LCDs, Bluetooth radios, and motors. This book

will be a valuable resource for students taking a course that combines digital logic and computer architecture or students taking a two-quarter sequence in digital logic and computer organization/architecture. Covers the fundamentals of digital logic design and reinforces logic concepts through the design of an ARM microprocessor. Features side-by-side examples of the two most prominent Hardware Description Languages (HDLs)—SystemVerilog and VHDL—which illustrate and compare the ways each can be used in the design of digital systems. Includes examples throughout the text that enhance the reader's understanding and retention of key concepts and techniques. The Companion website includes a chapter on I/O systems with practical examples that show how to use the Raspberry Pi computer to communicate with peripheral devices such as LCDs, Bluetooth radios, and motors. The Companion website also includes appendices covering practical digital design issues and C

programming as well as links to CAD tools, lecture slides, laboratory projects, and solutions to exercises.

Formal Verification - Erik Seligman 2015-07-24 Formal Verification: An Essential Toolkit for Modern VLSI Design presents practical approaches for design and validation, with hands-on advice to help working engineers integrate these techniques into their work. Formal Verification (FV) enables a designer to directly analyze and mathematically explore the quality or other aspects of a Register Transfer Level (RTL) design without using simulations. This can reduce time spent validating designs and more quickly reach a final design for manufacturing. Building on a basic knowledge of SystemVerilog, this book demystifies FV and presents the practical applications that are bringing it into mainstream design and validation processes at Intel and other companies. After reading this book, readers will be prepared to introduce FV in their organization and effectively deploy FV techniques to increase design and validation productivity. Learn formal verification algorithms to gain full coverage without exhaustive simulation Understand formal verification tools and how they differ from simulation tools Create instant test benches to gain insight into how models work and find initial bugs Learn from Intel insiders sharing their hard-won knowledge and solutions to complex design problems

What Can Be Computed? - John MacCormick 2018-05-01 An accessible and rigorous textbook for introducing undergraduates to computer science theory What Can Be Computed? is a uniquely accessible yet rigorous introduction to the most profound ideas at the heart of computer science. Crafted specifically for undergraduates who are studying the subject for the first time, and requiring minimal prerequisites, the book focuses on the essential fundamentals of

computer science theory and features a practical approach that uses real computer programs (Python and Java) and encourages active experimentation. It is also ideal for self-study and reference. The book covers the standard topics in the theory of computation, including Turing machines and finite automata, universal computation, nondeterminism, Turing and Karp reductions, undecidability, time-complexity classes such as P and NP, and NP-completeness, including the Cook-Levin Theorem. But the book also provides a broader view of computer science and its historical development, with discussions of Turing's original 1936 computing machines, the connections between undecidability and Gödel's incompleteness theorem, and Karp's famous set of twenty-one NP-complete problems. Throughout, the book recasts traditional computer science concepts by considering how computer programs are used to solve real problems. Standard theorems are stated and proven with full mathematical rigor, but motivation and understanding are enhanced by considering concrete implementations. The book's examples and other content allow readers to view demonstrations of—and to experiment with—a wide selection of the topics it covers. The result is an ideal text for an introduction to the theory of computation. An accessible and rigorous introduction to the essential fundamentals of computer science theory, written specifically for undergraduates taking introduction to the theory of computation Features a practical, interactive approach using real computer programs (Python in the text, with forthcoming Java alternatives online) to enhance motivation and understanding Gives equal emphasis to computability and complexity Includes special topics that demonstrate the profound nature of key ideas in the theory of computation Lecture slides and Python programs are available at whatcanbecomputed.com

Unity 5.x Game AI Programming Cookbook -

Jorge Palacios 2016-03-31
Build and customize a wide range of powerful
Unity AI systems with over 70 hands-on recipes
and techniques About This Book Empower your
agent with decision making capabilities using
advanced minimaxing and Negamaxing
techniques Discover how AI can be applied to a
wide range of games to make them more
interactive. Instigate vision and hearing abilities
in your agent through collider based and graph
based systems Who This Book Is For This book is
intended for those who already have a basic
knowledge of Unity and are eager to get more
tools under their belt to solve AI and gameplay-
related problems. What You Will Learn Use
techniques such as A*and A*mbush to empower
your agents with path finding capabilities.
Create a representation of the world and make
agents navigate it Construct decision-making
systems to make the agents take different
actions Make different agents coordinate actions
and create the illusion of technical behavior

Simulate senses and apply them in an awareness
system Design and implement AI in board games
such as Tic-Tac-Toe and Checkers Implement
efficient prediction mechanism in your agents
with algorithms such as N-Gram predictor and
naive Bayes classifier Understand and analyze
how the influence maps work. In Detail Unity 5
comes fully packaged with a toolbox of powerful
features to help game and app developers create
and implement powerful game AI. Leveraging
these tools via Unity's API or built-in features
allows limitless possibilities when it comes to
creating your game's worlds and characters.
This practical Cookbook covers both essential
and niche techniques to help you be able to do
that and more. This Cookbook is engineered as
your one-stop reference to take your game AI
programming to the next level. Get to grips with
the essential building blocks of working with an
agent, programming movement and navigation
in a game environment, and improving your
agent's decision making and coordination

mechanisms - all through hands-on examples using easily customizable techniques. Discover how to emulate vision and hearing capabilities for your agent, for natural and humanlike AI behaviour, and improve them with the help of graphs. Empower your AI with decision-making functions through programming simple board games such as Tic-Tac-Toe and Checkers, and orchestrate agent coordination to get your AIs working together as one. Style and approach This recipe-based guide will take you through implementing various AI algorithms. Each topic is explained and placed among other related techniques, sometimes building on the knowledge from previous chapters. There are also references to more technical books and papers, so you can dig deeper if you want to.
A Second Course in Formal Languages and Automata Theory - Jeffrey Shallit 2009
A textbook for a graduate course on formal languages and automata theory, building on prior knowledge of theoretical computer models.

Theory Of Automata, Formal Languages And Computation (As Per Uptu Syllabus) - S.P.Eugene Xavier 2005
This Book Is Aimed At Providing An Introduction To The Basic Models Of Computability To The Undergraduate Students. This Book Is Devoted To Finite Automata And Their Properties. Pushdown Automata Provides A Class Of Models And Enables The Analysis Of Context-Free Languages. Turing Machines Have Been Introduced And The Book Discusses Computability And Decidability. A Number Of Problems With Solutions Have Been Provided For Each Chapter. A Lot Of Exercises Have Been Given With Hints/Answers To Most Of These Tutorial Problems.
An Introduction to Formal Languages and Automata - Peter Linz 1997
An Introduction to Formal Languages & Automata provides an excellent presentation of the material that is essential to an introductory theory of computation course. The text was

designed to familiarize students with the foundations & principles of computer science & to strengthen the students' ability to carry out formal & rigorous mathematical argument. Employing a problem-solving approach, the text provides students insight into the course material by stressing intuitive motivation & illustration of ideas through straightforward explanations & solid mathematical proofs. By emphasizing learning through problem solving, students learn the material primarily through problem-type illustrative examples that show the motivation behind the concepts, as well as their connection to the theorems & definitions.

An Introduction to Formal Languages and Automata - Linz 2016-01-15
Data Structures & Theory of Computation