

“I have taught formal languages and automata theory for decades, and I have seen many, perhaps most, students struggle with the material because it is so abstract. I’ve often thought that computer science students would learn it better by programming it. Indeed, that’s how I really learned these topics—by implementing constructions directly in practical compiler generation and formal verification tools to do my research. Prof. Gopalakrishnan’s approach is to have students learn by doing, while still going into greater depth than some purely pencil-and-paper courses.”

—**Professor David L. Dill**, Donald E. Knuth Professor, Emeritus, in the School of Engineering, Stanford University

“It is probably a safe assumption to make these days that many, if not most, computer science undergraduates have had programming experience, but few of them know the language of mathematics. Professor Gopalakrishnan’s book builds on the student’s experience in programming and animates the theory of automata, formal languages, and computability with actual programs which the student can easily modify and play with. Doing is the best way of learning. This book should enable the typical computer science student to acquire a more visceral, and therefore in the long more useful, understanding of the theory.”

—**Dr. Ching-Tsun Chou**, Silicon Architecture Engineer, Intel Corporation

“As a long-time researcher in programming languages and high-performance computing, I find the coverage of Automata and Computability in this book illuminating from a foundational perspective as well as timely from a practical perspective. In addition to classical topics such as automata theory and parsing, it allows a student to interactively study via Jupyter notebooks a wide range of topics including grammar disambiguation, Boolean satisfiability, Post Correspondence and Lambda Calculus—all important topics for students who aspire to become proficient in computer science.”

—**Vivek Sarkar**, Professor, School of Computer Science & Stephen Fleming Chair for Telecommunications, College of Computing, Georgia Institute of Technology

COMPUTER SCIENCE & ENGINEERING

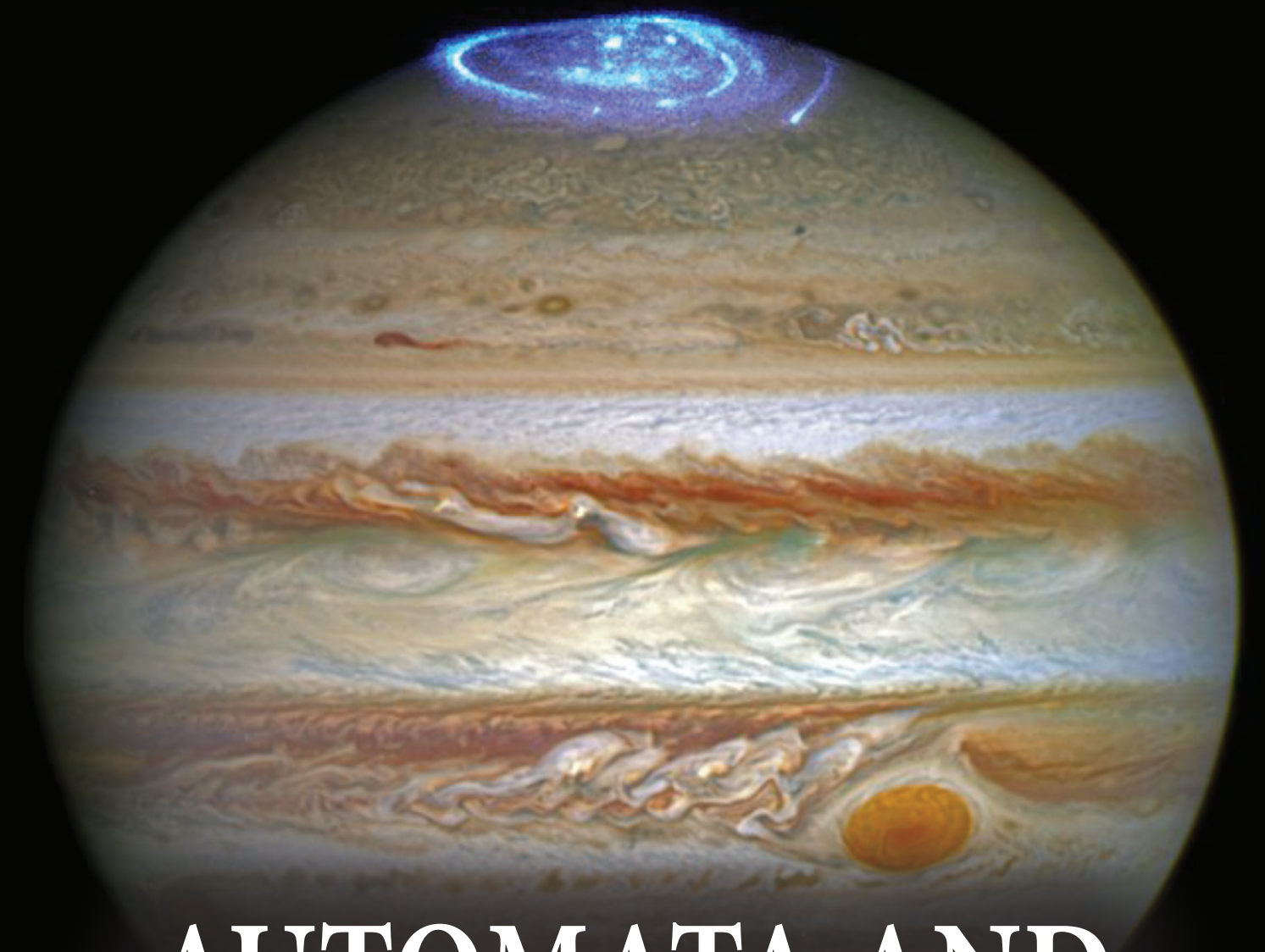
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AUTOMATA AND COMPUTABILITY

Gopalakrishnan



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A PROGRAMMER’S PERSPECTIVE

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