

X R D S

# The Future of Cybersecurity

A City That Thinks—but Doesn't Overthink

Cyber-Physical Security in Healthcare

Can You Trust What AI Hears (and Says)?



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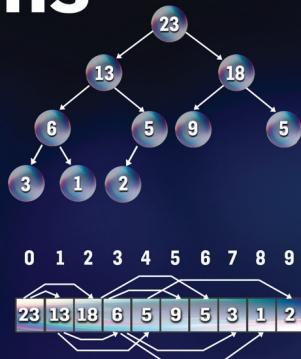
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# NEW BOOK RELEASE

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Gavin Lowe



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## Thinking About Programs

Gavin Lowe

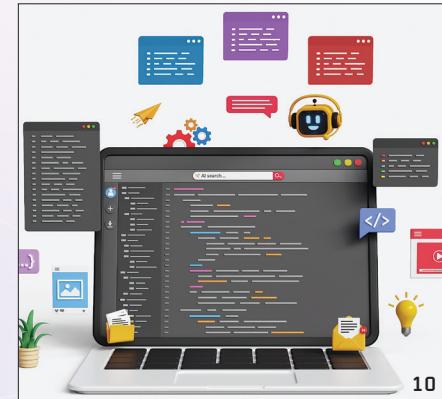
ISBN: 979-8-4007-3163-1

DOI: 10.1145/3731333

This book is based on the author's experience of 30 years of teaching programming at the University of Oxford and is an excellent choice for early programming courses offered by universities worldwide. It is a rigorous and thoughtfully structured textbook designed to equip students with both the theoretical underpinnings and practical skills essential in today's programming landscape.

The first part of the book considers small programs that use a loop, and how to demonstrate their correctness using loop invariants. It also covers some algorithms and algorithmic techniques that every programmer should know. The second half of the book considers slightly larger programs. It teaches the basics of modularization, splitting up a program into manageable chunks. It teaches about abstract datatypes, values within a program that can be treated as mathematical values: how to specify their behaviors formally; and how to treat them as abstract mathematical objects when programming. It also teaches how to use data structures to represent abstract datatypes, and what it means for such a representation to be correct. And it presents some abstract datatypes and data structures that every programmer should know. The book is pragmatic: the philosophy is to include enough formality to be convincing and to guide the programmer towards correct code, without getting bogged down in the mathematics.

<http://books.acm.org>



## begin

---

### 5 LETTER FROM THE EDITOR

#### **Securing our Future**

*By Denise Doig*

---

### 7 INIT

#### **The Future of Cybersecurity: Emerging challenges and innovative strategies**

*By Moshe Satt*

---

### 9 MILESTONES

#### **How Attacks Have Shaped Digital Defense**

*By Frank Schotanus*

---

### 10 ADVICE

#### **The Risks of AI Coding Assistants**

*By Matthew Galej*

---

### 12 USER ACCOUNT

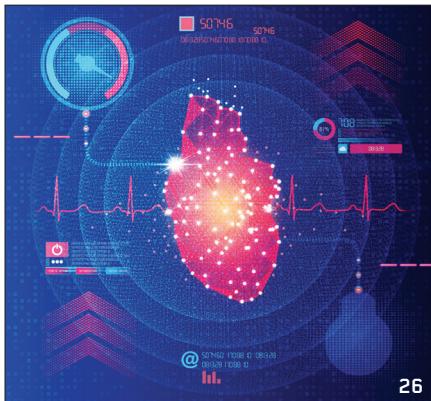
#### **Challenging the Growth Narrative in and Through HCI**

*By Vishal Sharma, Asra Sakeen Wani,  
Raphaël Marée, Christoph Becker,  
Douglas Schuler, Aparajita Marathe,  
Neha Kumar, Han Qiao,  
Rikke Hagensby Jensen,  
and Anupriya Tuli*

*On the Cover:*

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# THE FUTURE OF CYBERSECURITY



## features

### 18 FEATURE

#### AI-powered Phishing: The current landscape and future projections

By Daniel Aldam

### 22 FEATURE

#### Scams at Scale: Unmasking crypto fraud and social engineering on the modern web

By Abisheka Pitumpe, Muhammad Muzammil, Xigao Li, Nick Nikiforakis, and Amir Rahmati

### 26 FEATURE

#### Cyber-Physical Security in Healthcare: Vulnerabilities and emerging solutions

By Aakar Mutha



### 30 FEATURE

#### Deepfake Technology and the Rise of Misinformation

By Vamsi Koneti

### 34 FEATURE

#### Can You Trust What AI Hears (and Says)?

By Jaechul Roh

### 40 FEATURE

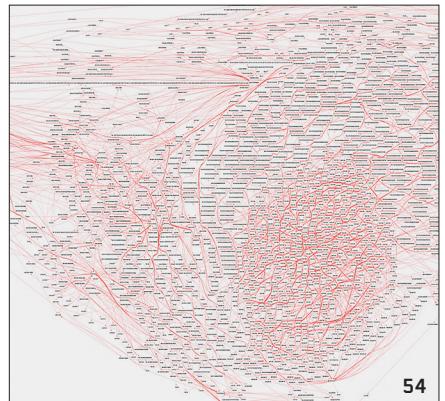
#### DMAP: A blockchain-enhanced deepfake verification framework to safeguard individual privacy and national security

By Abdul Waheed and Nicholas S. Reese

### 46 FEATURE

#### A City That Thinks—but Doesn't Overthink

By Hummd Damita Alikhan



## end

### 54 LABZ

#### Systems Security at LSU SySec Lab, Louisiana State University

By Julia Gersey

### 55 BACK

#### The First Computer Password

By Sophia Navalta

### 56 HELLO WORLD

#### Keeping Your Digital Life Safe: Building a simple password manager

By Pavithra Sripathanallur Murali

### 58 JARGON

### 58 POINTERS

### 60 EVENTS

### 64 BEMUSEMENT



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