Contents

List of figures	ix
List of tables	X
About the author	xi
Preface	xiii
Post script	xvi
List of abbreviations	xvii

PART I BACKGROUND FOR CYBERSECURITY LAW

- 1 Introduction: Cybersecurity and cybersecurity law
 - 1.1 Defining cybersecurity
 - 1.2 Cybersecurity law: Overview of the book

Cyberspace, security, and law	11
2.1 What is 'security' in 'cyberspace'?	11
2.1.1 What is the 'internet'?	11
2.1.2 What is 'cyberspace'?	13
2.1.3 What is 'security'?	14
2.2 What is internet governance?	17
2.3 What is cybersecurity governance?	21
2.4 What is the role of law in cybersecurity governance?	23
2.4.1 The functions of law and technological change	23
2.4.2 Domestic law and cybersecurity governance	24
2.4.3 International law and cybersecurity governance	25

2

2

6

V

VI ADVANCED INTRODUCTION TO CYBERSECURITY LAW

PART II CYBERSECURITY AND NON-STATE ACTORS: CRIME AND TERRORISM IN CYBERSPACE

3	Cybercrime	30
	3.1 The cybercrime problem	30
	3.2 Cybercrime and domestic law	32
	3.2.1 Jurisdictional issues	33
	3.2.2 Substantive criminal law	34
	3.2.3 Criminal procedure and law-enforcement	

- access to electronic data and communications 36 37 3.2.4 Law enforcement, encryption, and 'going dark' 3.2.5 'Harden the target' and 'hacking back': Cyber defence and cyber deterrence 39 Cybercrime and international law 3.3 41 3.3.1 Sovereignty, non-intervention, and jurisdiction to prescribe and enforce law 41 3.3.2 Extradition and mutual legal assistance treaties 42 3.3.3 Harmonizing domestic law and facilitating law-enforcement cooperation through cybercrime treaties 45 3.3.4 International law and cybercrime: Cyber
 - defense and and an determine

55

55

57

57

60

65

66

67

69

defence and cyber deterrence

Cyber terrorism

4

- 4.1 The cyber terrorism problem
- 4.2 Cyber terrorism and criminal law
 - 4.2.1 Criminalizing acts of, support for, and glorification and incitement of terrorism
 - 4.2.2 International law and the criminalization of terrorism
 - 4.2.3 Criminal law, terrorism, and cyber terrorism
- 4.3 Protecting critical infrastructure from terrorism
 - 4.3.1 Critical-infrastructure protection and domestic law 66
 - 4.3.2 Critical-infrastructure protection and international law
- 4.4 Counterterrorism, electronic surveillance, and cybersecurity

CONTENTS vii

69

72

74

78

79

81

81

82

84

90

112

- 4.4.1 Counterterrorism, electronic surveillance, and domestic law
- 4.4.2 Counterterrorism, electronic surveillance, and international law
- 4.5 International law and state responsibility for combating terrorism

PART III CYBERSECURITY AND STATE ACTORS: ESPIONAGE AND WAR IN CYBERSPACE

- Cyber espionage
- 5.1 The cyber espionage problem
- 5.2 Cyber espionage and international law
 - 5.2.1 The traditional approach to espionage under international law
 - 5.2.2 Cyber espionage and rethinking the traditional approach to espionage under international law
 - 5.2.3 Cyber espionage, economic cyber espionage, and the extraterritorial application of international law
- 5.3 Domestic law and cyber espionage

6

		0.1
5.3.1	Conducting cyber espionage	91
5.3.2	Defending against cyber espionage	93
5.3.3	Balancing cyber offence and defence: The zero-day vulnerability problem	98
5.4 Bey	ond cyber espionage: Covert cyber operations	101
Cyber wa	r	104
6.1 The	e cyber war problem	105
6.2 Goi	ing to war in cyberspace: Domestic law and	
wai	powers	108
6.2.1	Stuxnet as a case study	109
6.2.2	War powers in domestic law	110

6.3 Going to war in cyberspace: International law on the use of force

ADVANCED INTRODUCTION TO CYBERSECURITY LAW viii

- 6.3.1 The prohibition of the use of force and the right to use force in self-defence
- 6.3.2 Determining what is a 'use of force' and an 'armed attack'
- 6.3.3 Responding to a use of force or an armed attack 116

112

114

119

140

142

142

142

144

145

148

148

149

150

152

- 6.3.4 Anticipatory self-defence 117
- 6.3.5 The principles on state responsibility
- 6.3.6 The act and crime of aggression 120
- 637 Security Council authorization of the use of force 121

	0.5.7	occurry council authorization of the use of force	141	
	6.3.8	Humanitarian intervention	122	
	6.3.9	Cyber operations not constituting uses of force	122	
6	.4 Fig	hting armed conflict in cyberspace	127	
	6.4.1	Background on international humanitarian law	127	
	6.4.2	Cyber operations and armed conflict	129	
	6.4.3	Cyber operations during international armed conflict	136	
	6.4.4	Cyber operations during non-international armed conflict	137	
6	.5 Arı	ns control and cyber weapons	138	
	6.5.1	Arms control strategies	139	
	6.5.2	Confidence-building measures	140	

- 6.5.2 Confidence-building measures
 - 6.5.3 Export control strategies
- Conclusion: Cybersecurity law in a divided world Taking stock of cybersecurity law 7.1
 - 7.1.1 Cybersecurity and non-state actors: Cybercrime and cyber terrorism
 - 7.1.2 Cybersecurity and state actors: Cyber espionage and cyber war
 - Cybersecurity's 20 years' crisis 7.2
 - The next decade in cybersecurity law 7.3
 - International law 7.3.1
 - 7.3.2 Domestic law

Final thoughts 7.4

Index

7