# Contents

<table>
<thead>
<tr>
<th>Preface</th>
<th>xi</th>
</tr>
</thead>
<tbody>
<tr>
<td>Acknowledgment</td>
<td>xv</td>
</tr>
</tbody>
</table>

1 Introduction

1.1 Historical overview
1.2 The man with the golden arm
1.3 Intellectual property protection
1.4 Forensic science and detection
1.5 Data falsification in science
1.6 Cryptography (and SETI)
1.7 Randomness

2 Overview of the design inference

2.1 The Explanatory Filter
2.2 The logic of the inference
2.3 Case study: The creation–evolution controversy
2.4 From design to agency

3 Probability theory

3.1 The probability of an event
3.2 Events
3.3 Background information
3.4 Likelihood
3.5 The best available estimate
3.6 Axiomatization of probability

4 Complexity theory

4.1 The complexity of a problem
4.2 Problems and resources
4.3 Difficulty and its estimation 99
4.4 Axiomatization of complexity 106
4.5 Calibration through complexity bounds 110
4.6 Information measures 114
4.7 RMS measures 118
4.8 Technical supplement on RMS measures 130

5 Specification 136
5.1 Patterns 136
5.2 The requisite precondition 137
5.3 Detachability 145
5.4 Specification defined 151
5.5 Pyramids and presidents 154
5.6 Information tucked within information 156
5.7 Prediction 159
5.8 Increasing the power of a complexity measure 160
5.9 Caputo revisited 162
5.10 Randomness revisited 167

6 Small probability 175
6.1 Probabilistic resources 175
6.2 The Generic Chance Elimination Argument 184
6.3 The magic number 1/2 190
6.4 Statistical significance testing 199
6.5 Local and universal small probabilities 203
6.6 The inflationary fallacy 214
6.7 The Law of Small Probability 217

7 Epilogue 224

References 231
Index 239