

Cognitive Biases in Visualizations

Geoffrey Ellis
Editor

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 Springer

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Preface

... and their judgement was based more upon blind wishing than upon any sound prevision; for it is a habit of mankind to entrust to careless hope what they long for and to use sovereign reason to thrust aside what they do not fancy. Thucydides 420 BC

Little did the Greek Historian Thucydides know that he was describing, what is essentially confirmation bias, almost 2500 years ago. People were making poor decisions then and still are ... and at least some of these are due to cognitive biases and are not necessarily their fault. It's only since the 1970s that the term cognitive bias has been used to describe "errors in judgment" or "irrational choices". Hundreds of cognitive biases have been described in terms of people's decision-making behavior in particular situations, however there has been limited progress in mitigating the impact of cognitive biases and hence improving judgements. Some five years ago, whilst working on a project concerned with cognitive biases, I speculated whether people's decision-making, whilst using visualisation applications, are subject to cognitive biases, and if so, can we adapt such applications to lessen their impact and hence improve decisions. This led to the 1st DECISIVE workshop at IEEE 2014 in Paris, *Dealing with Cognitive Biases in Visualisations*, with the aim of providing a forum for researchers and practitioners, from a wide range of disciplines, to raise and discuss pertinent issues concerning cognitive biases in visualizations. This raised awareness in the subject area and kick-started research. The 2nd DECISIVE workshop took place at IEEE VIS 2017, in Phoenix, USA with the aim to highlight ways in which cognitive biases have a detrimental impact on users decision making when using visualisation and analytics tools, and to explore practical ways to "measure" the occurrence of cognitive biases and develop ways of reducing their potentially harmful effects. Accepted papers from this workshop form the basis of this book.

DECISIVe 2017 Workshop

Original submissions were typically 5 pages in IEEE format and were carefully reviewed by three program committee members. Seven submissions were accepted with minor corrections, whilst another seven were subject to major revisions, which were then reviewed again before final acceptance.

Eight of the workshop papers have been extended (between 50 and 100%) by their authors whilst another three have minor changes. Two chapters have been added—an introduction to cognitive biases, providing background to the subject area, and an invited contribution from Donald Kretz, who has 30 years' experience in cognitive science research, decision making and intelligence analysis.

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Konstanz, Germany

Geoffrey Ellis

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