

Preface

Engineering is often thought to be very rational. But when we look way back into history, human beings made tools without the benefit of too much knowledge and experience. Instead, they were driven by their desire to explore new worlds by developing new tools. Indeed, *Homo faber* is the essence of engineering. We design and manufacture our products to develop new experiences. Engineering is more than just providing conveniences. If we remember that engineering started with emotion, it does not come as a surprise when we stop to consider the role of emotion in engineering.

The twenty-first century is an open world. In the twentieth century, technological advancements took place in relatively predictable directions, which meant we had enough knowledge and experience to make decisions. But today society is expanding rapidly, taking us beyond our traditional knowledge and experience. With such uncertainty, we need to look to our emotions to provide us with a sense of direction and a sense of balance, or what Aristotle described as “common sense”. If emotion is interpreted in the sense of its original meaning, it is very much active, because it means to “move out”, which comes from the Latin words *e* = *ex* = out, and *movere* (motion). It should also be noted that the word “motivation” has the same origin. In fact, emotion motivates our actions. It will take you higher and provide you with a better perspective. Emotion will play a very important role in rationalizing our actions or decision making in this age of increasing uncertainty.

Human beings are characterized in many ways, such as “*Homo faber*” (human makes a tool), “*Homo ludens*” (human plays), “*Homo loquens*” (human speaks), “*Homo mobens*” (human moves or travels), *etc.* They all describe how humans are motivated and they all lead to today’s engineering. Our customers’ expectations are quickly changing from better products to mental satisfactions. Therefore, more attention and effort should be focused upon human characteristics in our product design.

Traditional product development has been one way from the producer to the customer. Value was only thought about in terms of final product performance.

We forgot that our customers are not just passive consumers. They are very much active and creative. They invent many new ways of using our product, not only to meet their needs or preferences, but also to enjoy using them. They are creating value themselves by inventing a wide variety of experiences that the product designers never dreamed of. If we consider that they would also like to get involved in product development to exhibit their creativity more and to enjoy the experience, then our product development must be changed drastically to make this possible. Engineering can provide our customers with experiences not only as users but also as developers.

This book presents a wide variety of research topics on emotional engineering with contributions from leading experts in many different fields. Chapter 1 is an introduction to the topic. Chapters 2, 9, and 11 discuss emotional communication from different perspectives: Chapter 2 covers ambient information; Chapter 9, embodiment; and Chapter 11, human–computer interaction. Chapters 3, 4, 6, 9, and 13 study emotion in virtual environments: Chapter 3 looks at skill transfer; Chapter 4, skill and creativity; Chapter 6, emotional design; Chapter 9, embodiment; and Chapter 13, 3D shape evaluation. Chapter 4 discusses customer creativity and customer involvement in product development, which is not often discussed elsewhere. Chapters 5 and 16 are kansei engineering papers: Chapter 5 looks at driver emotion and head-up displays; and Chapter 16 discusses product design. The issue of driver emotion is also covered in Chapter 14. Chapter 16 deals with sound and describes kansei engineering approaches generally. Chapters 7 and 9 deal with emotion and robots. Chapters 4, 8, and 13 describe shape design. Chapter 8 discusses the relation of shape with $1/f$ fluctuations. Chapter 10 discusses affordance perception from an emotional standpoint. Chapter 12 describes how emotion can be utilized for rating TV programs. Chapters 15 and 19 both discuss footwear issues: Chapter 15 looks at the problem from a medical angle; whilst the development of sports shoes are covered in Chapter 19. Chapters 17 and 20 discuss emotion in engineering design teams: Chapter 17 describes how emotion can be captured and analyzed; and Chapter 20 looks at how better teams can be formed with due attention to emotion. Chapter 18 introduces how biological signals can be used to detect excitement. Finally, Chapter 21 discusses how emotional and creative motion can be generated.

I hope the reader will enjoy exploring the wide open world of emotional engineering. It will pave our way to wisdom engineering.

Finally, I would like to thank all the authors from the bottom of my heart and would also like to thank Mr. Anthony Doyle and Ms. Claire Protherough, both at Springer, UK, and also Mr. David Hemsley for editing the book.

Shuichi Fukuda



<http://www.springer.com/978-1-84996-422-7>

Emotional Engineering

Service Development

Fukuda, S. (Ed.)

2011, XVIII, 395 p., Hardcover

ISBN: 978-1-84996-422-7