

Foreword

Information Technology, in relatively few years, has changed the way of life of humanity. We communicate in a very varied and instantaneous way, we have almost unlimited access to information and with one click we enjoy endless services. This race does not end. We are promised vehicles that move alone, robots to take care of us, and even trips to the moon. This boom is being achieved thanks to the great investment in research and technology development of countries that seek their primacy in the world. Many technological developments, such as the Internet itself, which are widely used today, had their origins in man-made military projects. Perhaps this is one of the reasons why so few women have stood out as IT researchers or innovators.

In recent years a great worldwide movement has been born to invite women to study IT careers and postgraduate degrees. Its impact will be known in a few years. Women, by our nature, have a sensitivity to social problems and this should be reflected in future IT developments.

Meanwhile, I am very pleased to meet in this book the women researchers who are leading the way in Latin America and the Caribbean and they are confirming my hypothesis of worrying more about solving social problems.

The first important topic you will find in this book is the problem of inclusion. Starting with the women's inclusion in technological development from not strictly engineering areas like Data Science, Virtual Reality, or Human-Computer Interaction to increase interdisciplinary knowledge. Another major inclusion issue is the development of technological products for people with disabilities to help them regain their independence and inclusion in social life. People who do not have much experience in the use of technology can also have many problems in accessing, for example, educational or health online platforms. So investigating the barriers that people have can lead to proposing better software engineering solutions to make these platforms more inclusive.

The second important topic is education. No one has doubts about the importance of incorporating IT into the learning process. In this book, you will find women contributions to developing software applications, incorporating robotics, augmented reality, or games to assist the teaching and learning practices. An interesting Open Education proposal to empower people to meet their learning goals is presented as well as the Data Warehouse technology application to integrate educational information, using fuzzy logic, which can help to make managerial decisions in Education. Also, the application of gamification on some Software Engineering course topics to engage students and increase their motivation is discussed.

Software Engineering research topics also include some social elements. How human factor training needs can help software development organizations to change to a continuous software improvement culture. Another study of development models and tools is trying to identify the diversity of factors for

the formation of project teams. Also, some significant research, development, and education activities to develop personal knowledge, skills, and experiences around the Software Architecture are reported, as well as the results obtained in five-year effort research aiming at understanding the role that human factors play in Software Engineering.

In this book, you will also find research summaries that include new trends in IT. For example, discussion about the characteristics of nonverbal interaction in virtual reality, presenting advances in the automatic interpretation of the users' nonverbal interaction while a spatial task is collaboratively executed. Also, you will find the latest advances and developments in Virtual Reality to develop a computational model that generates indications in natural language, for the location of objects considering spatial and cognitive aspects of the users.

As well as several artificial intelligence techniques focused mainly on ant colony optimization, response threshold models, and stochastic learning automata, or the framework for the analysis of Smart Cities and Smart Cities Big Data algorithms for sensors location. Finally, you will find a case study of the dissemination of railway engineering research in Latin America developed by a railway engineering research group leaded by a woman.

This book is an important testimonial to the IT research carried out in recent years by the women of the Latin American and Caribbean countries. New generations of women can learn not only about their research topics but also about the obstacles and challenges they had to face. It is a very interesting source of knowledge and inspiration for female researchers of the future. And for men too :)

Hanna Oktaba

Universidad Nacional Autónoma de México, Mexico

Hanna Oktaba was born in Warsaw, Poland in 1951. Doctor in Computer Science from the University of Warsaw. She directed the MoProSoft project, which was published as the MNX-I-059-NYCE standard in 2005. Between 2006 and 2015, she was the representative of Mexico at WG 24 of ISO JTC1 / SC7 for the creation of the ISO / IEC 29110 standard for Very Small Entities based on MoProSoft. She is a full-time professor at the National Autonomous University of Mexico (UNAM), where she is the leader of the Quali-Kaans research group.