

# CONTENTS

SERIES FOREWORD.....	ix
EDITORS' FOREWORD .....	xi
LIST OF CONTRIBUTORS.....	xv
CHAPTER 1	
WORK WITH TECHNOLOGY: SOME FUNDAMENTAL ISSUES	
<i>Erik Hollnagel, Pietro C. Cacciabue, &amp; Jean-Michel Hoc ...</i>	1

## SECTION 1

### COGNITION AND WORK WITH TECHNOLOGY

CHAPTER 2	
HUMAN OPERATOR EXPERTISE IN DIAGNOSIS, DECISION- MAKING, AND TIME MANAGEMENT	
<i>Jean-Michel Hoc, René Amalberti, &amp; Nicholas Boreham..</i>	19
CHAPTER 3	
UNITARY THEORIES OF COGNITIVE ARCHITECTURES	
<i>Johan Kjaer-Hansen.....</i>	43
CHAPTER 4	
SIMULATION OF COGNITION: APPLICATIONS	
<i>Pietro C. Cacciabue &amp; Erik Hollnagel .....</i>	55
CHAPTER 5	
SYMBOLIC AI COMPUTER SIMULATIONS AS TOOLS FOR INVESTIGATING THE DYNAMICS OF JOINT COGNITIVE SYSTEMS	
<i>David D. Woods &amp; Emilie Roth.....</i>	75

## **SECTION 2**

### **DEVELOPMENT OF COMPETENCE AND EXPERTISE**

<b>CHAPTER 6</b>	
<b>ERROR ANALYSIS AND EXPERT-NOVICE DIFFERENCES IN MEDICAL DIAGNOSIS</b>	
<i>Nicholas Boreham</i> .....	93

<b>CHAPTER 7</b>	
<b>CONCEPTUAL MODELS FOR TRAINING</b>	
<i>Renan Samurçay</i> .....	107

<b>CHAPTER 8</b>	
<b>FROM REAL SITUATIONS TO TRAINING SITUATIONS: CONSERVATION OF FUNCTIONALITIES</b>	
<i>Janine Rogalski</i> .....	125

<b>CHAPTER 9</b>	
<b>AN ORIENTATION-BASED APPROACH TO EXPERTISE</b>	
<i>Leena Norros</i> .....	141

## **SECTION 3**

### **COOPERATION BETWEEN HUMANS AND COMPUTERS**

<b>CHAPTER 10</b>	
<b>DESIGN OF COOPERATIVE SYSTEMS IN COMPLEX DYNAMIC ENVIRONMENTS</b>	
<i>Hakim Benchekroun, Bernard Pavard, &amp; Pascal Salembier</i> .....	167

<b>CHAPTER 11</b>	
<b>TRUST AND HUMAN INTERVENTION IN AUTOMATED SYSTEMS</b>	
<i>Neville P. Moray, Douglas Hiskes, John Lee, &amp; Bonnie M. Muir</i> .....	183

<b>CHAPTER 12</b>	
<b>HANDLING HUMAN ERROR</b>	
<i>Antonio Rizzo, Donatella Ferrante, &amp; Sebastiano Bagnara</i> .....	195

<b>CHAPTER 13</b>	
<b>MAN-MACHINE COOPERATIVE ORGANIZATIONS: FORMAL AND PRAGMATIC IMPLEMENTATION METHODS</b>	
<i>Patrick Millot &amp; René Mandiau .....</i>	<b>213</b>
<b>CHAPTER 14</b>	
<b>THE ART OF EFFICIENT MAN-MACHINE INTERACTION: IMPROVING THE COUPLING BETWEEN MAN AND MACHINE</b>	
<i>Erik Hollnagel.....</i>	<b>229</b>
<b>CHAPTER 15</b>	
<b>"HUMAN-LIKE" SYSTEM CERTIFICATION AND EVALUATION</b>	
<i>Guy Boy.....</i>	<b>243</b>
<b>CHAPTER 16</b>	
<b>PLANNING SUPPORT AND THE INTENTIONALITY OF DYNAMIC ENVIRONMENTS</b>	
<i>Morten Lind &amp; Morten N. Larsen .....</i>	<b>255</b>
<b>CHAPTER 17</b>	
<b>EXPERTISE AND TECHNOLOGY: "I HAVE A FEELING WE ARE NOT IN KANSAS ANYMORE"</b>	
<i>Erik Hollnagel, Jean-Michel Hoc, &amp; P.C. Cacciabue .....</i>	<b>279</b>
<b>SUBJECT INDEX.....</b>	<b>287</b>