Index

A
73 Easting Project, 13
Acquisition and system acceptance, 199
Adaptive interfaces, 250
Advantages and Disadvantages of M&S, 21–22
Ambient intelligent environments, 110
Analysis, 4
Capacity, 191
Data, 132
Problems, 157
Regression, 146
Sensitivity, 132
System, 199
Analytical M&S, 72
Analytical solution, 72–74
Markov Chain, 73
Avatar, 12
Displays, 111–113
Autostereoscopic and volumetric 3D, 111
Tabletop, 112
Wearable, 112
Mobile, 112
E
Euler’s Method, 61
Event, 49
Random, 49
List, 49
Generator, 49
Executive Council on Modeling and Simulation, 13
Experimentation, 15
F
Forecast, 230
G
Gaining insight, 37
I
Inductive assertion, 133
Inductive reasoning, 230
Institute for Defense Analysis, 13
ITEC, 200
Integrated simulation, 16
International Council of Systems Engineering (INCOSE), 7
J
Joint Simulation Systems (JSIMS), 13
K
Kendall’s Notation, 76
L
Lemma Theorem Corollary structure, 96
Central Limit Theorem, 96
Link Flight Simulator, 10, 251

Copyright © 2009 John Wiley & Sons, Inc.
Index

Link, Edward, 10
Livermore, Major W.R., 9
Little’s Law, 77

M
Macroscopic Traffic Simulations, 17
Measure of performance, 99
Medical M&S, 18–19, 209–230
Complex manipulation simulators, 222
Disease Modeling, 19
Hospital Management, 19
Improved Training of Medical Professionals, 18
Improve Treatment, 18
Mannequins, 215
Precision Placement Simulators, 221
Procedural simulations, 221
Simple Manipulation simulators, 222
Standardized patient, 214
Microwave Early Warning (MEW), 10
Military-Industrial Complex, 11
Model, 5, 122
Calibration, 33, 197–198
Conceptual, 123
Credibility, 134–138
Executable, 123
Modeling, 4
Modular Semi-automated Forces (ModSAF), 13
Multi-modal, 182
O
Operation Desert Shield, 13
Operation Desert Strom, 13
P
Predicate calculus, 134
Predict, prediction, 32, 230
Predictive displays, 167
Pulse!, 252
Q
Queueing Models, 71, 74
Attributes, 74
Deterministic or stochastic, 75, 92
Network, 78
Queue discipline, 76
System, 48, 71
R
Randomness, 93
S
Scientific method, 91
Semi-automated ground environment (SAGE), 10
Sequential Simulation, 79–80
Simon, Herbert A., 4
SIMPACK Queuing Implementation, 81
Simulation, 4–6, 123, 154–156
Constructive, 160
Continuous, 47, 58–69
Convergent, 249
Discrete event, 47–58
Experimentation, 156–157
Games, Serious Games, 159, 249
Gaming simulation, 160
Lifetime of, 40–41
Monte Carlo, 199
Parallel, 87
Retro-, 158
Spreadsheet use, 50
Structural, 158
Time, 48
Trajectory, 157
Simulator-networking (SIMNET), 12
Smart Rooms / Intelligent Spaces, 113–116
Social Science M&S, 19–20
Agent-based modeling, 19, 232
Behavior modeling, 232
Diplomatic, Infrastructure, Military, Economic (DIME), 20, 231
Effects-based Warfare, 20
Formal modeling, 19, 232
Game theory, 233–234
Multi-agent modeling, 232
Political, Military, Economic, Social, Information, Infrastructure (PMESII), 20, 231
Social network modeling, 232, 234–235
Social sciences, 231
Statistical modeling, 19, 231
Spacewar, 11
Stand-alone simulation, 16
State of system, 48
State variables, 48, 58
System, 7, 236
System Dynamics, 235–237
Causal loop diagram, 236
Statistical analysis, 31
T
Training, 15, 30
TRANSIMS, 190–191
Trip chain, 190
Transportation operations, 191
Travel Demand Model, 194
Car following theory, 193
Impedence function, 185
Microscopic traffic simulation, 192
<table>
<thead>
<tr>
<th>Term</th>
<th>Page</th>
</tr>
</thead>
<tbody>
<tr>
<td>Mode split</td>
<td>188</td>
</tr>
<tr>
<td>Traffic analysis zones</td>
<td>184</td>
</tr>
<tr>
<td>Traffic assignment</td>
<td>189</td>
</tr>
<tr>
<td>Trip distribution</td>
<td>185</td>
</tr>
<tr>
<td>Trip generation</td>
<td>184</td>
</tr>
<tr>
<td>Turing Test</td>
<td>143</td>
</tr>
<tr>
<td>Turing Test</td>
<td>143</td>
</tr>
<tr>
<td>Uncertainty</td>
<td>34</td>
</tr>
<tr>
<td>Aleatory</td>
<td>36</td>
</tr>
<tr>
<td>Epistemic</td>
<td>36</td>
</tr>
<tr>
<td>Validate</td>
<td>29</td>
</tr>
<tr>
<td>Validation</td>
<td>126</td>
</tr>
<tr>
<td>Face</td>
<td>131</td>
</tr>
<tr>
<td>Predictive</td>
<td>133</td>
</tr>
<tr>
<td>Risks</td>
<td>134–137</td>
</tr>
<tr>
<td>Variables</td>
<td>99</td>
</tr>
<tr>
<td>Static</td>
<td>99</td>
</tr>
<tr>
<td>Experimental</td>
<td>99</td>
</tr>
<tr>
<td>Verification and validation</td>
<td>64, 121–149, 170</td>
</tr>
<tr>
<td>Accreditation</td>
<td>125–127</td>
</tr>
<tr>
<td>Dynamic</td>
<td>132</td>
</tr>
<tr>
<td>Formal</td>
<td>133</td>
</tr>
<tr>
<td>Methods</td>
<td>130–134</td>
</tr>
<tr>
<td>Motivation</td>
<td>121</td>
</tr>
<tr>
<td>Simuland</td>
<td>122</td>
</tr>
<tr>
<td>Static</td>
<td>131</td>
</tr>
<tr>
<td>Verification</td>
<td>126</td>
</tr>
<tr>
<td>Inspection</td>
<td>131</td>
</tr>
<tr>
<td>Virtual reality</td>
<td>108, 221</td>
</tr>
<tr>
<td>Virtual simulation</td>
<td>16</td>
</tr>
<tr>
<td>Virtual worlds</td>
<td>109</td>
</tr>
<tr>
<td>Visualization</td>
<td>4</td>
</tr>
<tr>
<td>Animations</td>
<td>104</td>
</tr>
<tr>
<td>Computer display standards</td>
<td>104</td>
</tr>
<tr>
<td>Devices</td>
<td>250</td>
</tr>
<tr>
<td>Graphics file formats</td>
<td>104</td>
</tr>
<tr>
<td>Scientific VisRep</td>
<td>106</td>
</tr>
<tr>
<td>Pipeline</td>
<td>105</td>
</tr>
<tr>
<td>Visual analytics</td>
<td>107</td>
</tr>
<tr>
<td>Visual representation</td>
<td>103</td>
</tr>
<tr>
<td>Z</td>
<td></td>
</tr>
<tr>
<td>Zero-sum simulation</td>
<td>16</td>
</tr>
</tbody>
</table>