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   Sommario/riassunto   Alan Turing pioneered many research areas such as artificial intelligence, computability, heuristics and pattern formation. Nowadays at the information age, it is hard to imagine how the world would be without computers and the Internet. Without Turing's work, especially the core concept of Turing Machine at the heart of every computer, mobile phone and microchip today, so many things on which we are so dependent would be impossible. 2012 is the Alan Turing year -- a centenary celebration of the life and work of Alan Turing. To celebrate Turing's legacy and follow the footsteps of this brilliant mind, we take this golden opportunity to review the latest developments in areas of artificial intelligence, evolutionary computation and metaheuristics, and all these areas can be traced back to Turing's pioneer work. Topics include Turing test, Turing machine,

artificial intelligence, cryptography, software testing, image processing, neural networks, nature-inspired algorithms such as bat algorithm and cuckoo search, and multiobjective optimization and many applications. These reviews and chapters not only provide a timely snapshot of the state-of-art developments, but also provide inspiration for young researchers to carry out potentially ground-breaking research in the active, diverse research areas in artificial intelligence, cryptography, machine learning, evolutionary computation, and nature-inspired metaheuristics. This edited book can serve as a timely reference for graduates, researchers and engineers in artificial intelligence, computer sciences, computational intelligence, soft computing, optimization, and applied sciences.