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Sommario/riassunto	This monograph introduces readers to new theories and methods applying cognitive computing and geometric space transformation to the field of fault diagnosis and prognostics. It summarizes the basic concepts and technical aspects of fault diagnosis and prognostics technology. Existing bottleneck problems are examined, and the

advantages of applying cognitive computing and geometric space transformation are explained. In turn, the book highlights fault diagnosis, prognostic, and health assessment technologies based on cognitive computing methods, including deep learning, transfer learning, visual cognition, and compressed sensing. Lastly, it covers technologies based on differential geometry, space transformation, and pattern recognition.