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Computational Intelligence

Concepts to Implementations

By Russell Eberhart and Yuhui Shi

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The “soft” analytic tools that comprise the field of computational intelligence have matured to the extent that they can, often in powerful combination with one another, form the foundation for a variety of solutions suitable for use by domain experts without extensive programming experience.

Computational Intelligence: Concepts to Implementations provides the conceptual and practical knowledge necessary to develop solutions of this kind. Focusing on evolutionary computation, neural networks, and fuzzy logic, the authors have constructed an approach to thinking about and working with computational intelligence that has, in their extensive experience, proved highly effective.

Features

- Moves clearly and efficiently from concepts and paradigms to algorithms and implementation techniques by focusing, in the early chapters, on the specific concepts and paradigms that inform the authors’ methodologies.
- Explores a number of key themes, including self-organization, complex adaptive systems, and emergent computation.
- Details the metrics and analytical tools needed to assess the performance of computational intelligence tools.
- Concludes with a series of case studies that illustrate a wide range of successful applications.
- Presents code examples in C and C++.
- Provides, at the end of each chapter, review questions and exercises suitable for graduate students, as well as researchers and practitioners engaged in self-study.
- Makes available, on a companion website, a number of software implementations that can be adapted for real-world applications.

About the Authors

Russell Eberhart is Professor of Electrical and Computer Engineering at Purdue School of Engineering and Technology, and Vice President of Computelligence LLC, in Indianapolis. He and Yuhui Shi are co-authors with Jim Kennedy of *Swarm Intelligence* (Morgan Kaufmann, 2001). **Yuhui Shi** is an Embedded System Specialist for Electronic Data Systems, Inc. He is an associate editor of the IEEE Transactions on Evolutionary Computation.

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