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## Artificial Higher Order Neural Networks for Modeling and Simulation

Ming Zhang (Christopher Newport University, USA)

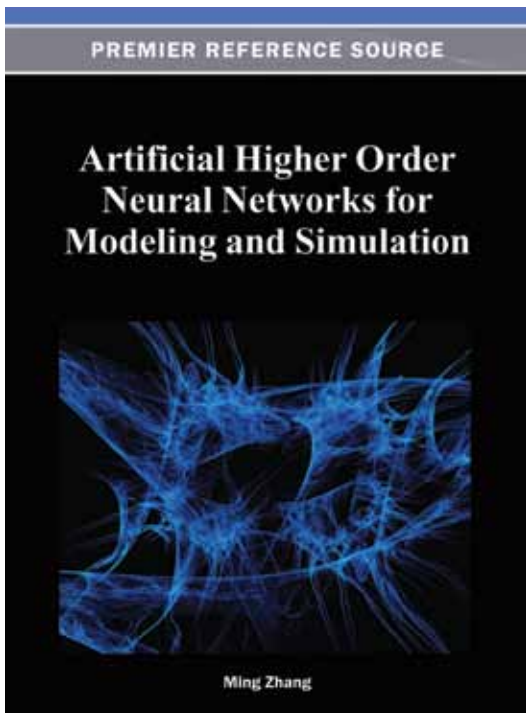
With artificial neural network research being one of the new directions for new generation computers, current research suggests that open-box artificial higher order neural networks (HONNs) play an important role in this new direction.

**Artificial Higher Order Neural Networks for Modeling and Simulation** introduces artificial Higher Order Neural Networks (HONNs) to professionals working in the fields of modeling and simulation, and explains that HONN is an open-box artificial neural network tool as compared to traditional artificial neural networks. Including details of the most popular HONN models, this book provides an opportunity for practitioners in the field of modeling and simulations to understand and know how to use HONNS in their area of expertise.

### Topics Covered:

- Artificial HONNs for Control and Predication
- Artificial HONNS for Modeling and Simulation
- Artificial HONNS for Modeling MIMO Discrete-Time Nonlinear System
- Artificial HONNS for Modeling Combinatorial Optimization Problems
- Artificial Multi-Polynomial HONNS
- Artificial Polynomial and Trigonometric Higher Order Neural Network Group Models
- Cooperative Control of Unknown Networked Lagrange Systems Using Higher Order Neural Networks
- Higher Order Neural Networks for Business and Accounting; City Manager Compensation and Hybrid Higher Order Neural Structure for Pattern Recognition
- Time Series Forecasting Via a Higher Order Neural Network Trained with the Extended Kalman Filter for Smart Grid Applications

**Market:** This premier publication is essential for all academic and research library reference collections. It is a crucial tool for academicians, researchers, and practitioners and is ideal for classroom use.



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\* Pre-pub price is good through one month after publication date.

**Ming Zhang** was born in Shanghai, China. He received the MS degree in information processing and PhD degree in the research area of computer vision from East China Normal University, Shanghai, China, in 1982 and 1989, respectively. He held Postdoctoral Fellowships in artificial neural networks with the Chinese Academy of the Sciences in 1989 and the USA National Research Council in 1991. He was a face recognition airport security system project manager and PhD co-supervisor at the University of Wollongong, Australia in 1992. Since 1994, he was a lecturer at the Monash University, Australia, with a research area of artificial neural network financial information system. From 1995 to 1999, he was a senior lecturer and PhD supervisor at the University of Western Sydney, Australia, with the research interest of artificial neural networks. He also held Senior Research Associate Fellowship in artificial neural networks with the USA National Research Council in 1999. He is currently a Full Professor and graduate student supervisor in computer science at the Christopher Newport University, VA, USA. With more than 100 papers published, his current research includes artificial neural network models for face recognition, weather forecasting, financial data simulation, and management.



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