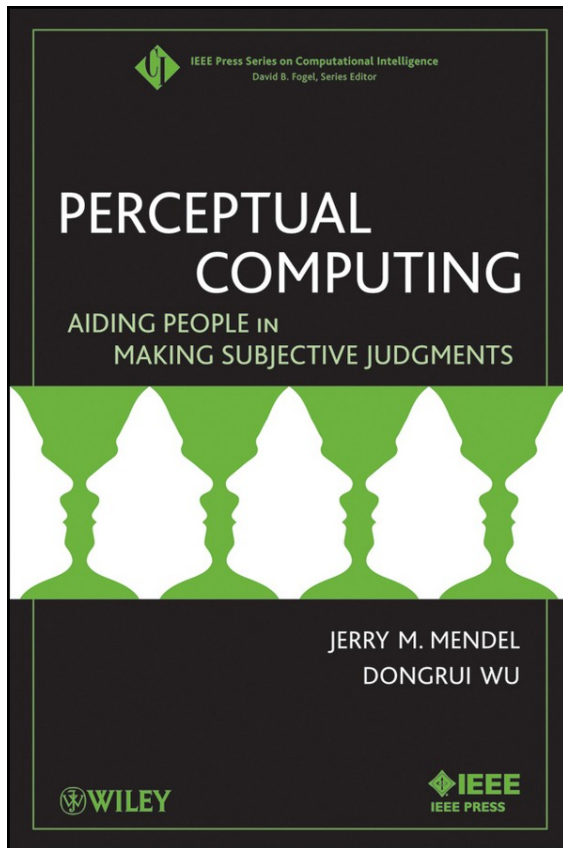


# EXPLAINS FOR THE FIRST TIME HOW “COMPUTING WITH WORDS” CAN AID IN MAKING SUBJECTIVE JUDGMENTS



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Perceptual Computing explains how to implement CWW to aid in the important area of making subjective judgments, using a methodology that leads to an interactive device—a "Perceptual Computer"—that propagates random and linguistic uncertainties into the subjective judgment in a way that can be modeled and observed by the judgment maker.

This book focuses on the three components of a Perceptual Computer—encoder, CWW engines, and decoder—and then provides detailed applications for each. It uses interval type-2 fuzzy sets (IT2 FSs) and fuzzy logic as the mathematical vehicle for perceptual computing, because such fuzzy sets can model first-order linguistic uncertainties whereas the usual kind of fuzzy sets cannot. Drawing upon the work on subjective judgments that Jerry Mendel and his students completed over the past decade, Perceptual Computing shows readers how to:

- Map word-data with its inherent uncertainties into an IT2 FS that captures these uncertainties
- Use uncertainty measures to quantify linguistic uncertainties
- Compare IT2 FSs by using similarity and rank
- Compute the subsethood of one IT2 FS in another such set
- Aggregate disparate data, ranging from numbers to uniformly weighted intervals to nonuniformly weighted intervals to words
- Aggregate multiple-fired IF-THEN rules so that the integrity of word IT2 FS models is preserved

## ABOUT THE AUTHORS

**Jerry M. Mendel** is Professor of Electrical Engineering at the University of Southern California. A Life Fellow of the IEEE and a Distinguished Member of the IEEE Control Systems Society, Mendel began his career at McDonnell Douglas before joining USC in 1974. He is the recipient of many awards for his diverse research, including the IEEE Centennial Medal, the Fuzzy Systems Pioneer Award from the IEEE Computational Intelligence Society, and the IEEE Third Millennium Medal. His research centers on Type 2 Fuzzy Logic and smart oil field technology.

**Dongrui Wu** received a B.E in Automatic Control from the University of Science and Technology of China, Hefei, Anhui, P.R. China, in 2003, and an M.Eng in Electrical Engineering from the National University of Singapore, Singapore, in 2005. Currently he is pursuing his Ph.D. in Electrical Engineering at the University of Southern California, Los Angeles, CA. His research interests include control theories, computational intelligence, machine learning, signal processing, and their applications to smart oilfield technologies. He received a Best Student Paper Award from the IEEE International Conference on Fuzzy Systems, Reno, Nevada, 2005. Dongrui Wu is a student member of IEEE and SPE, and a member of Eta Kappa Nu.

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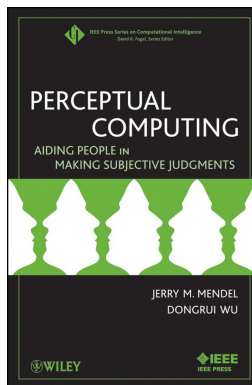
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