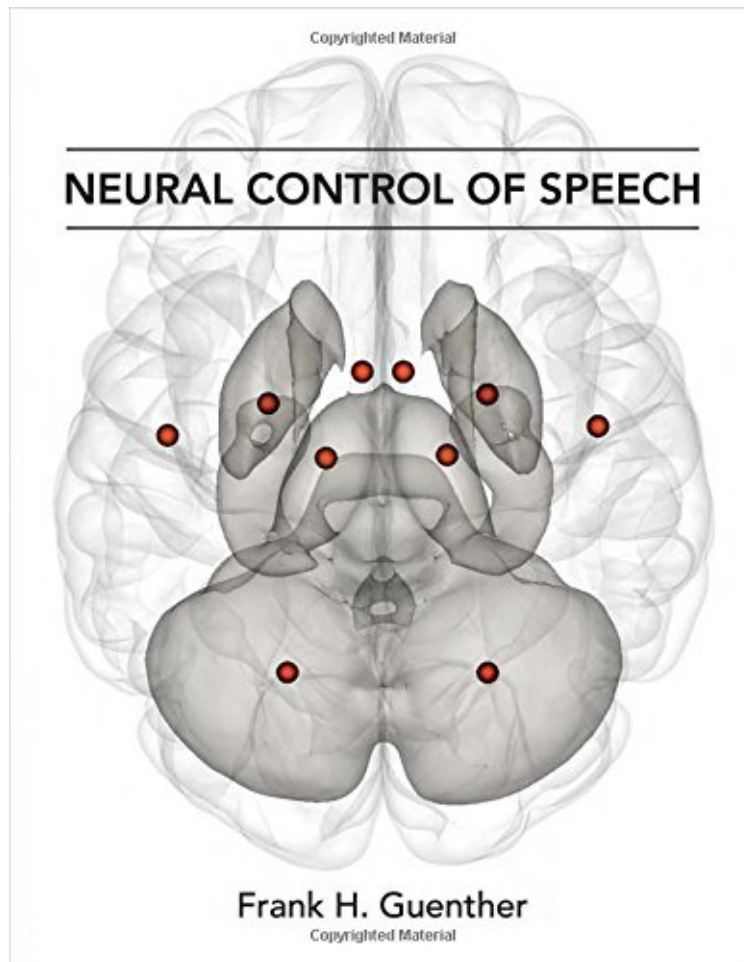


[Free pdf] Neural Control of Speech (MIT Press)

Neural Control of Speech (MIT Press)

Frank H. Guenther

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Frank H. Guenther : Neural Control of Speech (MIT Press) before purchasing it in order to gage whether or not it would be worth my time, and all praised Neural Control of Speech (MIT Press):

A comprehensive and unified account of the neural computations underlying speech production, offering a theoretical framework bridging the behavioral and the neurological literatures. In this book, Frank Guenther offers a comprehensive, unified account of the neural computations underlying speech production, with an emphasis on speech motor control rather than linguistic content. Guenther focuses on the brain mechanisms responsible for commanding the musculature of the vocal tract to produce articulations that result in an acoustic signal conveying a desired string of syllables. Guenther provides neuroanatomical and neurophysiological descriptions of the primary brain structures involved in speech production, looking particularly at the cerebral cortex and its interactions with the cerebellum and

basal ganglia, using basic concepts of control theory (accompanied by nontechnical explanations) to explore the computations performed by these brain regions. Guenther offers a detailed theoretical framework to account for a broad range of both behavioral and neurological data on the production of speech. He discusses such topics as the goals of the neural controller of speech; neural mechanisms involved in producing both short and long utterances; and disorders of the speech system, including apraxia of speech and stuttering. Offering a bridge between the neurological and behavioral literatures on speech production, the book will be a valuable resource for researchers in both fields.

Neural Control of Speech is a landmark treatment of the most complex motor system in existence. Frank Guenther provides the first truly comprehensive and unified account of speech motor control. It includes discussions of the cortical, cerebellar, and basal ganglia neural systems involved in speech motor control, and of the behavioral feedforward and feedback functions performed by these systems. Moreover, it provides a lucid review of the extensive literature, including speech motor development and pathology. Above all, Guenther's DIVA model provides a unified, transparent perspective on this fascinating human ability. This book is bound to become a classic, a must-read for any speech scientist or therapist. (Willem Levelt, Max Planck Institute for Psycholinguistics) Frank Guenther achieves an unprecedented amalgamation of the behavioral and neurological discoveries that define the contemporary understanding of speech in health and neurological disease. The synthesis of this vast array of scientific information is coupled with ingenious advances in computational modeling, thereby giving the reader a privileged perspective on what is known along with a set of powerful tools for future research into the human faculty of speech. (Raymond D. Kent, Professor Emeritus, University of Wisconsin-Madison, editor, The MIT Encyclopedia of Communication Disorders) This fascinating book situated within the triangle of motor control, psycholinguistics, and neuroscience is the first to provide a coherent view of how speaking is implemented in the brain. Frank H. Guenther is highly knowledgeable in all three domains, and his writing style makes these topics easy to grasp. (Angela D. Friederici, Director of the Max Planck Institute for Human Cognitive and Brain Sciences, Leipzig, Germany) About the Author Frank H. Guenther is Professor in the Department of Speech, Language, and Hearing Sciences and in the Department of Biomedical Engineering at Boston University, where he is also Director of the CNS Speech Laboratory and the Neural Prosthesis Laboratory. He is on the faculty of the Harvard/MIT Speech and Hearing Bioscience and Technology Program and a Research Associate at MIT's Picower Institute for Learning and Memory.