This volume provides the first unified and comprehensive overview of the new discipline of cognitive neuroscience of aging. The goal of Cognitive Neuroscience of Aging is to introduce the reader to this new discipline at a level that is useful to both professionals and students in the domains of cognitive neuroscience, cognitive psychology, neuroscience, neuropsychology, neurology, and other, related areas.

This book is divided into four main sections. The first section describes noninvasive measures of cerebral aging, including structural (e.g., volumetric MRI), chemical (e.g., dopamine PET), electrophysiological (e.g., ERPs), and hemodynamic (e.g., fMRI), and discusses how they can be linked to behavioral measures of cognitive aging. The second section reviews evidence for the effects of aging on neural activity during different cognitive functions, including perception and attention, imagery, working memory, long-term memory, and prospective memory. The third section focuses on clinical and applied topics, such as the distinction between healthy aging and Alzheimer's disease and the use of cognitive training to ameliorate age-related cognitive decline. The last section describes theories that relate cognitive and cerebral aging, including models accounting for functional neuroimaging evidence and models supported by computer simulations. Taken together, the chapters in this volume provide the first unified and comprehensive overview of the new discipline of cognitive neuroscience of aging.