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Human brain atlases in neurology, neurosurgery and neuroeducation

We witness recently an explosion of brain-related initiatives. Our contribution has been in the creation of adult human brain atlases in health and disease, and the development of atlas-based solutions for education, research and clinical applications resulting in 35 brain atlases licensed to 67 companies and institutions, and being distributed in about 100 countries. Here, we address atlas usefulness in neuroeducation, neurosurgery, and neurology. Atlases are particularly useful in neuroeducation. Our most advanced 3D atlas “The Human Brain, Head and Neck in 2953 Pieces” created from 3/7 Tesla MRI and CT, has several novel features including: virtual 3D brain dissection, scene composing/decomposing, simultaneous display of surface and sectional neuroanatomy, continuous brain navigation, presentation of anatomy in context, correlation of neuroanatomy with terminology, quantification, and teaching materials preparation. In neurosurgery, we have introduced electronic brain atlases to clinical practice (used by 13 surgical companies), mainly for deep brain stimulation. They are useful for surgery planning, intra-operative support, and post-operative neurologic assessment. Additionally, the probabilistic functional atlas is useful for studying functional properties of cerebral structures. Our “3D Atlas of Neurologic Disorders” bridges neurology neuroanatomy and neuroradiology. It correlates brain damage with the resulting disorder and associated signs, symptoms and syndromes.

Recent Publications

1. Nowinski W L (2017) Human brain atlasing: past, present and future. *The Neuroradiology Journal* 30(6):504-519.
2. Nowinski W L, et al. (2015) *The Human Brain, Head and Neck in 2953 Pieces*. Thieme, New York.
3. Nowinski W L, et al. (2014) *3D Atlas of Neurologic Disorders*. Thieme, New York.

Biography

Wieslaw L Nowinski is a Scientist, Innovator, Entrepreneur, Pioneer and Visionary. He is the Creator of world's most gorgeous human brain atlases. He has 568 publications, 121 patent applications filed and at least 76 granted (29 in US, 18 in EU), developed with his team 35 brain atlas products used in neurosurgery, neuroradiology, neurology, brain mapping, and neuroeducation, licensed to 67 companies and institutions, and distributed to about 100 countries. He has been conferred with 43 awards and honors, including 25 awards from leading medical societies. He was a Laureate (within top three) of European Inventor Award 2014 in Lifetime Achievement.

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