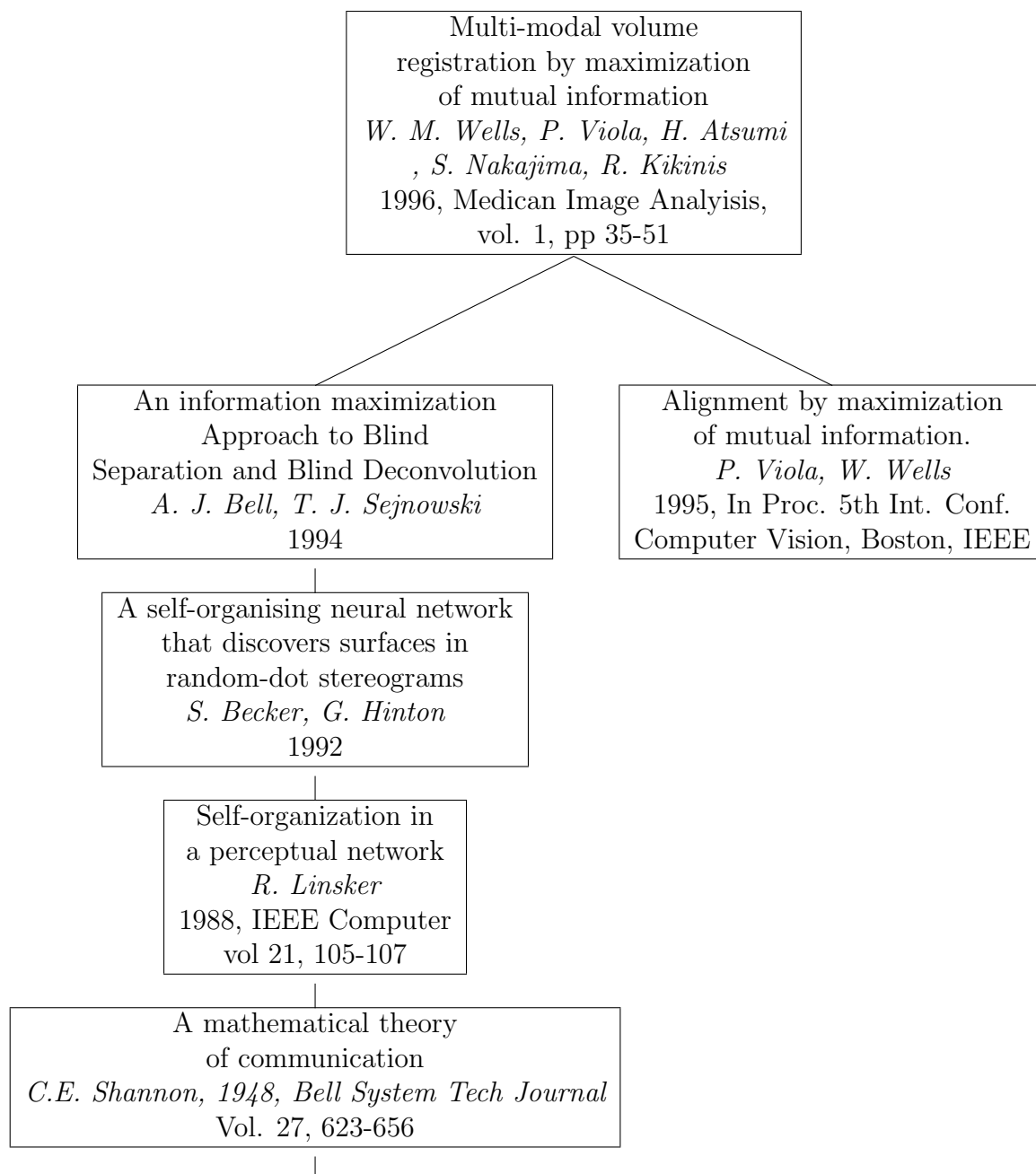
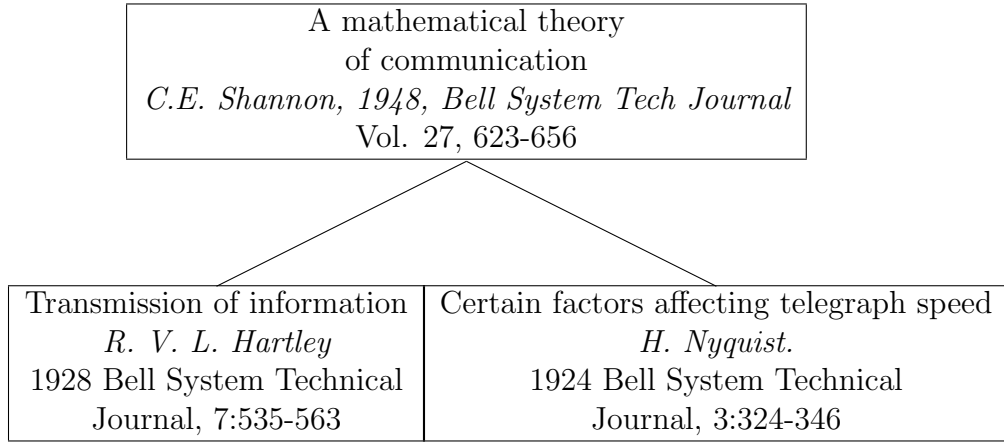


Literature review - ICVSS 2010

by Ernesto Brau, Luca Del Pero, Yekaterina Kharitonova, Kyle Simek.

This literature review is on the 1995 paper by Wells et al. titled Multi-modal volume registration by maximization of mutual information. We show the tree first and the justification is shown below.





The work of Wells and Viola builds on the concept of registering data with different modalities by maximizing the mutual information between images. We believe this is the key concept of their approach and we tried to trace the root of this idea. First, this concept is explained in great detail in the 1995 thesis by Viola. The ideas discussed in this paper rely heavily on information theory, as many of the papers cited by the Viola and Wells, such as Bell and Senjowski 1996, Becker and Hinton 1992 and Linsker 1986. Most of these works apply the principle of information maximization to the domain of neural networks. In order to fully understand these concepts it is important to have a good understanding of information theory, which traces back to "A mathematical theory of communication" by Shannon, which is cited by most of the papers listed above. In 1948, Shannon formalized previous work on information theory by Nyquist and Hartley on intelligence transmission and information in electronic communications. Among other things, Shannon introduced the key concept of mutual information as the rate of transmission between a source and a destination.