Neural Computation - Naturalization of Intelligence

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Neural computation has significantly contributed in the area of computational intelligence. In this talk, various neural computing schemes such as back propagation network, radial-basis function network and Self-organizing Map based computational architecture will be enumerated with examples in control, image coding and visual-motor coordination. In particular visual motor coordination problem will be dealt at length to demonstrate the efficacy of neural computation to learn in a natural model-free environment. Some of the recent works on quantum neural networks will also be revisited. In this framework, the response of a neural lattice will be modeled using a non-linear Schroedinger wave equation using the concept of collective response. The utility of such architectures in denoising, and control will be demonstrated. A road map will be built that would show a generic progression of neural computation in terms of naturalization of intelligence. Some few challenging problems will be put forth to show limitations of artificial-intelligence schemes to naturalize intelligence. It will be argued that neural computation does not naturalize intelligence qua intelligence.