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A smart method for next generation natural language processing

Access to the Internet by natural language will increase the number of the World Wide Web users. However, further improvements in the current situation of natural language processing require revolutionary technological advancement. My research theme is development of the next generation technology utilizing a neural network and a genetic algorithm in ways similar to our brains. My research goal is to achieve reliable natural language processing by the neural network and the genetic algorithm.

Traveling salesman problem

The traveling salesman problem is an optimization problem determining the shortest path including all cities one time. Increase the number of cities causes combinational explosion and leads computational complexities that can not be solved. I chose the traveling salesman problem as performance evaluation test-bed for the genetic algorithm.

There are several ways to solve this problem such as branch and bound and heuristic method. Heuristic solutions are obtained in short time, but not guaranteed to be optimal. On the other hand, branch and bound obtains exact solution but takes longer time. I'm trying to get optimal solutions by genetic algorithm in short time. I also plan to start research to provide computers with the splendid natural language processing abilities like human beings.

Simulating human information processing function

I'd studied electrical engineering as undergraduate student. I recognized the need to understand real brain function and applied to primatology course for graduate study. This

academic background forms the backbone of my research on the next generation technology. Information processing ability of brain had developed most remarkably at the process of the human evolution from apes to homo species. I believe the possibility of creating computers that can communicate with us by natural language processing. I'm pursuing the research to develop new methods to process of the information of the Internet by understanding the human evolution stages.

(Interviewed and summarized by Asako Murakami)