

先端科学技術研究科 修士論文要旨

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要旨			
In our computerized world, there is a strong demand for expert programmers with outstanding performance in software development and maintenance. Previous studies illustrated the characteristics of expert programmers in their behaviors, knowledge structures, and eye movements. However, the structural neural basis associated with programming expertise remains still unclear. We explore the brain areas that show associations between programming expertise and gray matter volume through volume-based morphometric approach (VBM). The results did not show any significant areas associated with programming expertise after the multiple comparison correction. On the other hand, uncorrected results and effect size may indicate potential involvements of the distributed areas in programming expertise. In addition, we discuss potential roles of these brain areas by referring to two cognitive abilities: general intelligence generally possessed among ordinal people, and expertise acquired among specific experts through long experience. Our results were consistent with previous studies of verbal comprehension in general intelligence and some expertise such as visual expertise, spatial expertise, and problem solving. Thus, programming expertise might involve the brain areas associated with general intelligence and some expertise.			