พิมพ์ต้นฉบับบทคัดย่อวิทยานิพนธ์ภายในกรอบสีเขียวนี้เพียงแผ่นเดียว

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CHATCHAWAN WONGSIRIPRASERT : A DESIGN AND DEVELOPMENT OF ALGORITHM VISUALIZATION SYSTEM KERNEL. THESIS ADVISOR : ASSO. PROF. SOMCHAI PRASITJUTRAKUL, Ph.D. 102 pp. ISBN 974-636-162-7.

Algorithm visualization is a means to study the behavior of how algorithms work by using graphical views and animations of the algorithms in action. This thesis presents a design and development of an algorithm visualization system for Microsoft Windows 3.1 operating environment named "AVis". AVis is divided into three parts (1) an algorithm visualization system kernel or AVisExecutive which provides visualization services, (2) an algorithm visualization system framework which defines how components communicate, and (3) utilities programs which ease the design and use of visualization session. AVisExecutive is implemented as a dynamic link library providing five group of services : parameter validation, message routing, algorithm synchronization, data store / query, and error handling. End users can visually create visualization sessions and observe the algorithm visualization effectively through the use of GUI-style control program.

Each visualization session consists of several processes called AVisComponents which can be categorized into four classes : data generator, algorithm, convertor, and view. By having a predefined method for message passing among AVisComponents, separating a visualization session into components makes the development of each component much easier, less side effect, independent, and reusable compared to having all components integrated into a single monolithic executable program. In addition, each component can be developed using suitable tools and languages for its purposes. However, these benefits are gained by using more system resources, and execution time which are normal acceptable. Experimental results showed that additional 13%-17% of system resources were used with 2%-11% slower when developing each components using Visual Basic.

ภาควิชา วิศวกรรมคอมพิวเตอร์ ลายมือชื่อนิสิต .....

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