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The PSP Practice Support System Using Multiagent Techniques and Manipulation Analysis Data

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Abstract

Multiagent technologies enable us to explore their sociological and psychological foundations.

Personal Software Process (PSP) support system is built using this.

Moreover, We think that the data inputted can acquire software development process by sorting out using a user action record table.

In this paper, the PSP system of programming is built and the analysys data of Multiagents learning method.

The data of the prostates cancer offered by the medical institution and a renal cancer was used for verification of a system.

Keyword:

Multiagent System, Personal Software Process ,Practis Support System

1 Introduction

An agent is a computational entity such as a software program or a robot, and can be viewed as perceiving and acting upon its environment. This agent is autonomous in that its behavior at least partially depends on its own experience.

Multiagent systems have the capacity to play an important role in developing and analyzing models and theories of interactivity in human societies. Humans interact in various ways and at many levels: for instance, they observe and model one another, they request and provide information, they observe and model one another, they request and provide information, they negotiate and discuss, they develop shared views of their environment, they detect as terms, committees, and economies. Many interactive processes among humans are still poorly understood, although they are an integrated part of our everyday life. Multiagent technologies enable us to explore their sociological and psychological foundations.

PSP support system is built using this. Moreover, We think that the data inputted can acquire software development process by sorting out using a user action record table.

In this paper, the PSP system of programming is built and the analysys data of Multiagents learning method. Generally, software process data is complicated, and when building a support system using such data including some action time, the calculation with expression is difficult in many cases. Then, the PSP systems configuration from a data pattern is effective using the Machine Learning who is excellent in pattern recognition to such a problem.

Furthermore, in order to treat effectively the error

included in data, a Rough Neural Network is formed using the extended type Rough Neuron defined from Rough Aggregate Theory. Moreover, change of the diagnostic accuracy by using Genetic Programming to changing the number and combination of the data inputted is seen. Back Propagation generally used in a Neural Network is used for study of a network.

The data of the prostates cancer offered by the medical institution and a renal cancer was used for verification of a system.

2 Intelligent Agents and Multiagent System

Artificial Intelligence (AI) has made great strides in computational problem solving using explicitly represented knowledge extracted from the task. If we continue to use explicitly represented knowledge exclusively for computational problem solving, we may never computationally accomplish a level of problem solving performance equal to humans. From this idea, the paper describes the development of a multiagent system that can be used to support the assessment of design performance in the cellular automata model. Agents represent objects or people with their own behavior, and take the structure of cellular automata lattice.

Intelligent agents and multiagent systems are one of the most important emerging technologies in computer science today [1]. The advent of multiagent systems has brought together many disciplines in an effort to build distributed, intelligent, and robust applications. They have given us a new way to look at distributed systems and provided a path to more robust intelligent applications.

Multiagent systems deal with coordinating intelligent behavior among a collection of autonomous agents. Emphasis is placed on how the agents coordinate their knowledge, goals, skills, and plans jointly to take action or to solve problems. Constructing the multiagent systems is difficult [2, 3]. They have all the problems of traditional distributed and concurrent systems plus the additional difficulties that arise from flexibility requirements and sophisticated interactions.

3 Personal Software Process

The Personal Software Process (PSP) is a self-improvement process that helps you to control, manage, and improve the way you work. It is a structured framework of forms, guidelines, and procedures for developing software [4]. Properly used, the PSP provides the data you need to make and meet commitments, and it makes the routine elements of your job more predictable and efficient.

The PSP's sole purpose is to help you improve your software engineering skills. It is a powerful tool that you can use in many ways. For example, it will help you manage your work, assess your talents, and build your skills. It can help you to make better plans, to precisely track your performance, and to measure the quality of your products. Whether you design programs, develop requirements, write documentation, or maintain existing software, the PSP can help you to do better work.

Rather than using one approach for every job, you need an array of tools and methods and the practiced skills to use them properly. The PSP provides the data and analysis techniques you need to determine which technologies and methods work best for you.

The PSP also provides a framework for understanding why you make errors and how best to find, fix, and prevent them. You can determine the quality of your reviews, the defect types you typically miss, and the quality methods that are most effective for you.

After you have practiced the exercises in this book, you will be able to decide what methods to use and when to use them. You will also know how to define, measure, and analyze your own process. Then, as you gain experience, you can enhance your process to take advantage of any newly developed tools and methods.

The PSP is not a magical answer to all of your software engineering problems, but it can help you identify where and how you can improve. However, you must make the improvements yourself.

PSP write several program using the evolving process shown Figure 1.

PSP0 and PSP0.1 hierarchy include introduces process discipline and measurement. PSP1 and PSP1.1 hierarchy include introduces estimating and planning. PSP2 and PSP2.1 hierarchy include Introduces quality management and design. Team Software Process exist over the PSP hierarchies. Because, PSP occupies an important part in the software engineering.

4 The PSP Practis support system using Multiagent

In this section, we study combined as it occurs in genetic Techniques into agent learner. We used as a tool for searching wide and complex solution space in Intelligent agent learns data. Intelligent agent using

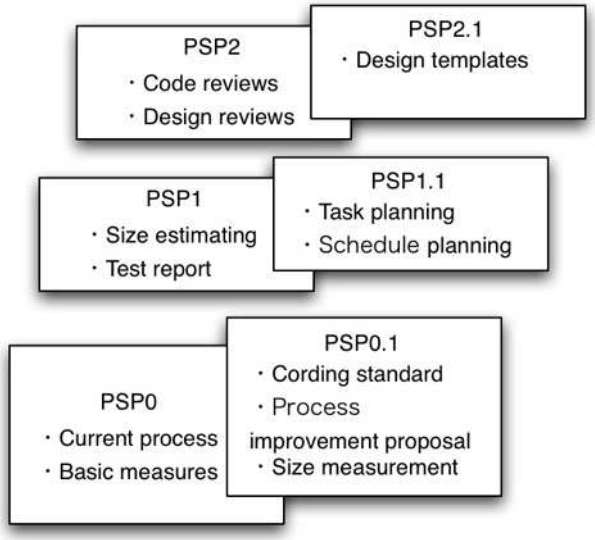

Figure 1: **PSP Process Evolution**

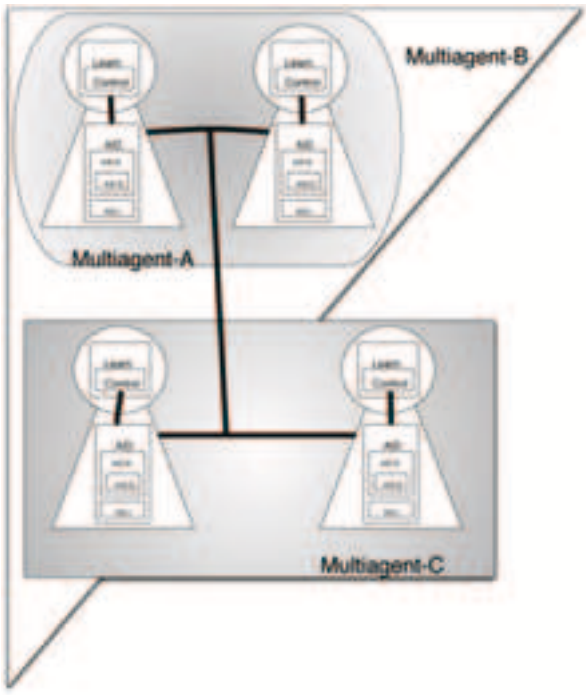

Figure 2: **Support System Communication of Multiagent**

complex techniques of related research. Multiagent is state in a filed shown Figure 2.

Figure 2 depicts the Agent Communication Module and shared Information Data. The Agent make filed in order to shared information data from Agent communication filed. These fields include other Learner kept in Intelligent Agent shown Figure 3.

Figure shows the Agent between communication module in other communicate method. In this case, Intelligent Agent support the PSP time and size measures record to user manipulation data. Agent Controller select over Intelligent Agent Information Data Share (AiD-S) over Agent Information Data Delivery (AiD-D).

Other Learner support anything AI techniques of input data. Intelligent Agent has made combined these techniques into the Machine Learning. Machine Learning include same function of standard algorithm using user analyses data. These techniques supported by analysis data in time sheet that retrieval of start and end point.

Table 1 shows the PSP record form Time Measures and Size Measures [4].

In the PSP, engineers use the time recording log to measure the time spent in each process phase. In this log, they note the time they started working on a task, the time when they stopped the task, and any interruption time. For example, an interruption would be a phone call, a brief break, or someone interrupting to ask a question. By tracking time precisely, engineers

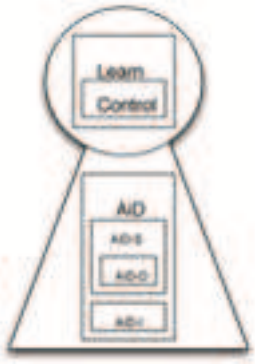

Figure 3: **The Configuration of Agent Module**

Table 1: The scale of program size categories

	Plan	Results	Accumulation
Base			
Added			
Modified			
Deleted			
New and Changed			
Reused			
New Reused			
Total			

track the effort actually spent on the project tasks. Since interruption time is essentially random, ignoring these times would add a large random error into the time data and reduce estimating accuracy.

Since the time it takes to develop a product is largely determined by the size of that product, when using the PSP, engineers first estimate the sizes of the products they plan to develop. Then, when they are done, they measure the sizes of the products they produced. This provides the engineers with the size data they need to make accurate size estimates. However, for these data to be useful, the size measure must correlate with the development time for the product. While lines of code (LOC) is the principal PSP size measure, any size measure can be used that provides a reasonable correlation between development time and product size. It should also permit automated measurement of actual product size.

So, This any measure record to support Intelligent Agent consider with using this Agent Learner expanded of PSP support. A person engaging in a person who experienced PSP and software development for many years is not very worried about a form record-keeping work. Record-keeping is vague, and what is performed of a person pressed by a work still increases. Necessity to perform automatically is important in a soldier, remission of an activity and process assay to record an activity precisely.

Therefore I record all activities, and a support system shares the documentary information, and an Intelligent agent examines to whether be content which documentary information to shows personal characteristic of difference with an another person.

5 Conclusion and Future Work

In this research we build Multiagent complex system sensing user working data. We were able to searching user experience data. We create agent learner data in user working analyses system.

For future works, we will consider methods quick running of agent learner in communication data and user experience data. We try to delete user missing work date filter on experience data. We consider to that delete missing work filter on experience data.

Future versions of this model will aim to show how the system in communication response in a more natural, unscripted scenario, involving multiple parts in addition to other forms of process and contingency.

References

[1] Weiss, G. (1999), Multiagent Systems, A Modern Approach to Distributed Artificial Intelligence, the MIT Press.

[2] Abul, O., Polat, F., and Alhajj, R. (2000), Multiagent Reinforcement Learning Using Function Approximation, IEEE Transaction on systems, man, and cybernetics-part c: application and reviews, Vol. 30, No. 4, pp. 485-497.

[3] Khosla, R., and Dillon, T. (1997), Engineering Intelligent Hybrid Multi-Agent Systems, Kluwer Academic Publishers.

[4] Watts S. Humphrey (2005), PSP - A Self-Improvement Process for Software Engineers, Addison-Wesley.