Master's Thesis

Construction of Mathematical Models and Development of Efficient Algorithms

Guidance

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Abstract

In this thesis, we construct the mathematical models of students who write the master's thesis and develop efficient algorithms for writing the master's thesis based on the models. We show that the proposed algorithms generate the thesis 65536 times more efficiently than writing by oneself.

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1 Introduction

In this thesis, we construct the mathematical models of students who write the master's thesis and develop efficient algorithms for writing the master's thesis based on this model. By improving the previous study [2], we construct more real models. Furthermore, we generate this thesis using the proposed algorithms.

2 Construction of mathematical models

In this section, we construct the mathematical models of students and the master's thesis.

2.1 Modeling of students' motivation

Let $x(t)$ denote the motivation of a student at time t. In the previous study [2], the following model was proposed:

$$x(t) = x_0 \mathrm{e}^{-t/a}, \tag{1}$$

where x_0 and $a > 0$ are the motivation at $t = 0$ and the interest for the research theme, respectively. Figure 1 shows an example of the time evolution of the model (1).

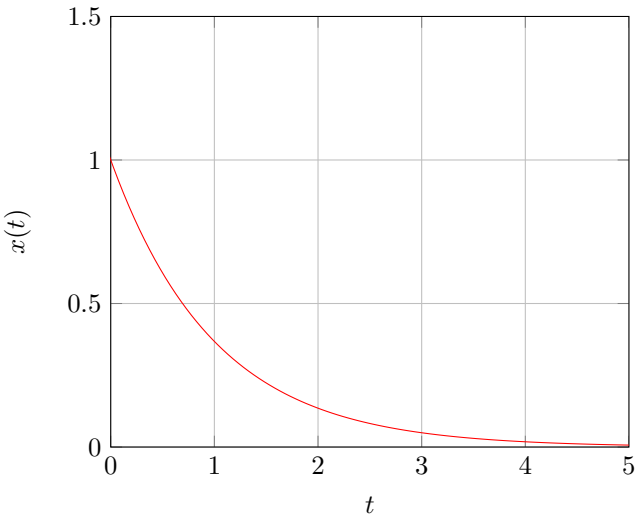

Figure 1: Example of the time evolution of the model (1) with $x_0 = 1$ and $a = 1$.

The model (1) lacks

- recovery of the motivation because of the progress of the research and tea break;
- final stretch before the deadline.

Let us improve the model (1). ...

2.2 Modeling of master's thesis

...

3 Development of efficient algorithms

In this section, we develop efficient algorithms for writing the master's thesis. ...

4 Conclusion

In this thesis, we have constructed the mathematical models of students who write the master's thesis. We have developed efficient algorithms for writing the master's thesis based on the models and generated this thesis using the proposed algorithms. The experiments have shown that the proposed algorithms generate the thesis 65536 times more efficiently than writing by oneself.

Acknowledgments

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References

[1] G. Polya, *How to solve it: a new aspect of mathematical method*, Princeton University Press, Princeton, 1945.

[2] H. Suri, *A study on mathematical models and their validity*, Master's thesis, Graduate School of Informatics, Kyoto University, 2010.

A Appendix

This is an appendix. This is a citation [1].

Table 1: This is a table.

	A	B
C	70	80
D	100	0

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