



Co-operative Education with Hokkaido University: Department of Mathematics

Generating of Music Variations using Mathematics Approach

AT_EX Presentation 2024

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About Hokkaido University

Hokkaido University



- Founded in 1876 (one of the oldest universities in Japan)
- Located in Sapporo, Hokkaido (northernmost island)
- Renowned for its research in agriculture, science, and engineering

Research Proposal Plan

Our research proposal plan aims to create music variations with mathematics. We propose to develop algorithms that can generate musically interesting song,

Here's how we plan to achieve this goal:

1. Develop mathematics algorithms to design criteria that generate music.
2. Compose a new Thai song using the developed algorithms for generating music variations.
3. Create a package for generating music variations.

Research Proposal Table

Period of Co-operative Education: August 5, 2024 - October 30, 2024

Date	Time	Activities
August 4	06:00 AM	Arrive at Suvarnabhumi Bangkok International Airport, Samut Prakan.
August 4	08:05 AM	Depart from Suvarnabhumi International Airport, Samut Prakan Province.
August 4	08:00 PM	Arrive at New Chitose Airport, Hokkaido.

Research Proposal Table

Date	Time	Activities
August 5	08:30 AM - 12:00 PM	Report for Co-operative Education at Department of Mathematics, Faculty of Science, Hokkaido University.
August 5	01:00 PM - 04:30 PM	Visit the research workplace of the Department of Mathematics, Faculty of Science, Hokkaido University.

Research Proposal Table

Date	Time	Activities
August 6 - October 29	08:30 AM - 04:30 PM	<p>Receive job training from supervisors at Department of Mathematics, Faculty of Science, Hokkaido University</p> <ul style="list-style-type: none">● Develop algorithms for criteria and chaotic systems● Compose a new music variations of Thai song using chaotic mapping● Create a package for music variations● Iterative refinement and evaluation

Research Proposal Table

Date	Time	Activities
October 30	09:00 AM - 12:00 PM	Present project summaries and project works to supervisors.
October 31	05:00 AM	Depart from accommodation to New Chitose Airport, Hokkaido.
October 31	07:20 AM	Depart from New Chitose Airport, Hokkaido.
October 31	04:20 PM	Arrive at Suvarnabhumi International Airport, Samut Prakan.

Expected Result from Research Proposal



Figure: The original of 12 variations on Ah vous dirai-je Maman in the first 2 bars.



Figure: The new variation of 12 variations on Ah vous dirai-je Maman in the first 2 bars.

Thank You

Thank you for listening!

Thanks for the presentation from ***Seville L^AT_EX Beamer Theme.***