



**IMPLEMENTATION OF INTELLIGENT CHATBOT AND
RECOMMENDATION SYSTEM TO HELP STUDENTS CHOOSE
MAJORS AT SMK NEGERI 7 MEDAN**

UNDERGRADUATE THESIS

**Submitted as one of the requirements to obtain
Sarjana Komputer (S.Kom.)**

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AUGUST, 2025**

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IMPLEMENTATION OF INTELLIGENT CHATBOT AND RECOMMENDATION
SYSTEM TO HELP STUDENTS CHOOSE MAJORS AT SMK NEGERI 7 MEDAN

ByPricilla Anastasya Law

12





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Basic scan

ShareExport

human

We are highly confident this text is entirely human

Probability breakdown: ⓘ
1% AI-generated · 0% Mixed · 99% Human

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Advanced Sentence Scanning

Understand how each sentence impacts AI probabilities and with interpretable reports (American Federation Teacher Certified)

Your most human sentences

Scan to update results
5,000 characters 710 words

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ABSTRACT

Choosing a college major is an important decision that will determine one's future career. However, many students find it difficult to choose a major that suits their interests and talents. This study developed a college major recommendation system called CareerPathAI that uses machine learning algorithms to help students make the right decision.

The system is built using a Random Forest Classifier approach that analyzes ten key parameters: logical reasoning, creativity, communication skills, data analysis, interest in biology, social awareness, interest in technology, design skills, economic understanding, and interest in the humanities. Each parameter is assessed through an interactive questionnaire with “yes” or “no” answers, which are then converted into numerical data for processing by the machine learning model.

The system implementation uses Flask as the backend to handle model predictions and HTML/CSS/JavaScript for a responsive user interface. The system supports two languages (Indonesian and English) and provides an engaging user experience with modern design, SVG animations, and a progress bar showing the questionnaire completion progress.

The model was trained using a dataset covering ten popular majors: Computer Science, Visual Communication Design, Information Systems, Communication Studies, Industrial Engineering, Nursing, Medicine, Architecture, Management, and International Relations. Each major prediction is accompanied by recommendations for the top three universities in Indonesia for that major.

Test results show that the system is capable of providing accurate major recommendations based on users' interests and talents. The intuitive and responsive interface allows users to easily access the system from various devices. The system can be further developed by adding more parameters, majors, and universities to improve the accuracy and scope of recommendations.

CareerPathAI provides a practical solution to help students choose a major that aligns with their characteristics, thereby increasing their chances of academic and career success in the future.

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