

ARTIFICIAL INTELLIGENCE TECHNIQUES IN PHILOSOPHY OF TRUTH AND UNTRUTH AND RELIGION

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Abstract: *Artificial intelligence technology is growing rapidly in line with the development of human thought, where many human activities and activities have now been replaced by computers. The development of artificial intelligence technology has caused many changes in the pattern of human life, human civilization, interaction and communication between humans and other changes. These changes have positive and negative impacts. One of the positive impacts is that the development of technology allows computers to help human work with better results. Such as the application of artificial intelligence techniques in determining the value of truth and untruth or determining the fatwa for the law of an event that is still the same or has doubts in it. By applying artificial intelligence techniques such as fuzzy logic and probability or uncertainty techniques, the results will be more objective.*

Keywords: *Truth and untruth, Fatwa, Artificial Intelligence*

Introduction

Technological developments greatly affect changes in civilization, culture and people's lifestyles. This is evidenced by the increasing dependence of humans on technology used in everyday life. Currently humans can use technological devices that have been implemented by artificial intelligence to do household chores that are done daily such as washing clothes, cooking, cleaning the house and many other jobs. The development of technology certainly not only has a positive impact on human life but also has a negative impact. One of the most basic negative impacts is that humans are increasingly losing their functions because they have been replaced by computers so that it has the potential to make humans weaker and lazy.

Artificial intelligence is currently a very interesting part of computer science for researchers in the computer field as well as computer application developers (Devianto & Dwiasnati, 2020). Currently artificial intelligence cannot be separated from human life. The more human needs, the more computer applications are needed that can replace humans doing their work. So that

currently very much human work that can be done by computers. Every day new artificial intelligence applications are born and of course more sophisticated and very helpful for human work. This is different from before where the sophistication of computers can only be enjoyed by certain groups with limited economic capacity, age restrictions, connection restrictions and other factors that limit people's ability to have sophisticated devices that can be accessed anytime and anywhere.

Artificial intelligence-based technology allows humans to humanize computers with all their capabilities. Computers are increasingly functioning as a tool that can replace humans in doing their jobs (Dewi, 2020). Currently, the development of artificial intelligence robots is increasingly resembling humans in various ways, both in terms of physical, behavior, abilities and so on. Intelligent robots are used by humans to replace humans in carrying out their daily activities. The robot can interact with other people very well. The robot's abilities are so detailed that they seem to have five senses like humans do. The intelligent robot can recognize humans, hear and understand human speech, answer questions and can find solutions if problems occur (Ratanajaya & Wibawa, 2018).

The philosophy of science helps humans find the essence of their lives, so that humans can be more humane (Rahman, 2020). Philosophy of science is growing along with the development of human thought. But the philosophy of science cannot solve all problems in human life (Simanjuntak & Riandari, 2021). The development of human thought when associated with artificial intelligence certainly forms a new understanding space in computer science. The various capabilities possessed by artificial intelligence technology devices such as robots certainly give rise to many questions that must be answered. The question is of course related to the impact that will occur as a result of these developments and also what surprises will occur next or to what extent humans can humanize computers? Will computers have their own civilization? whether the computer will be able to interact with other computers without human assistance? Is the computer able to distinguish between error and truth and make its own decisions? so whether the computer can learn on its own to build its own character or have its own principles?

These questions will be answered by themselves over time and the development of human thought. Currently, based on the above thinking, this article will discuss how the methods, techniques and algorithms found in science can find solutions to the problems of truth and untruth in human life (Drs. A.Sutanto, 2019). When viewed from a religious perspective, these techniques can be used to determine the law of a problem that is still vague (Qamaruzzaman & Sam'ani, 2018). Currently in Islam, the law of the issue that is still vague is determined in a fatwa by looking at the law of similar or close or similar issues. In addition, fatwas are also determined by listening to the opinions of religious experts, which of course are sometimes subjective and tend to have the potential to have errors. Therefore we need a technique that can provide consideration for deciding fatwas by looking at related attributes or factors. Some of the techniques that will try to be implemented to solve these problems include uncertainty techniques, probability techniques, fuzzy logic and decision support.

Literature Review

Science phylosophy

Philosophy of science is one of the branches of philosophy that explains the nature of science such as explaining the birth of scientifically conceptualized statements and explaining the scientific statements or concepts. The philosophy of science also discusses how science is able to explain, predict and use technology to take advantage of nature so that it can find the truth of an information.

Artificial Intelligence

Artificial intelligence is a part of computer science that studies how humans can represent their knowledge in the form of a knowledge base that can be entered into computers so that computers are able to complete human work (Samsudin, Ab. Halim, & Khalid, 2021). Artificial intelligence discusses the concepts used by humans to provide intelligence to computers by building sophisticated software and hardware to replace humans in carrying out their human activities. Artificial intelligence is divided into several techniques or fields such as robotics, games, fuzzy logic, artificial neural networks, data mining, decision support systems, machine learning and other fields that discuss how computers can have knowledge and can use this knowledge in solving problems like humans. The technique or field of artificial intelligence that will be used in solving the problems in this article is fuzzy logic and decision support systems (Ririh, Laili, Wicaksono, & Tsurayya, 2020).

Logika Fuzzy

Fuzzy logic is a logic that can define values that contain ambiguity between true and false. Fuzzy logic was first coined by Prof. Lotfi Askar Zadeh, he is an American scientist of Iranian nationality (Taufiq, 2016). Fuzzy logic is usually applied to solve problems of uncertainty and imprecision. Fuzzy logic has a great influence on the development of computer science, this can be seen from the increasing ability of computers to solve problems. Fuzzy logic is able to provide answers to problems that cannot be solved by boolean logic which only recognizes values 0 and 1 or true and false (Utama, 2021). Fuzzy logic is able to define values between 0 and 1 or values that are between true and false. Fuzzy logic solves the problem with several steps, among others, determining the degree of membership or fuzzyfication, forming inferences and returning the original value or defuzzification. The sophistication of computer technology today is inseparable from fuzzy logic. Currently, fuzzy logic is often used in the field of control in automation and robotics, pattern matching, decision making in industry, medicine in diagnosing disease and other fields that are still under development (Rahmawati, Rahma, Suryani, & Sari, 2020).

Decision Support System

Decision support system is a system that has the ability to determine a decision in a problem with semi-structured and unstructured conditions. Decision support systems are built with the aim of helping humans make decisions by looking at and considering the criteria objectively. Decisions resulting from decision support systems can overcome human weaknesses which tend to be subjective. Decision support systems can also produce more precise and timely decisions (Taufiq, 2016). Currently, decision support systems are widely used by management or decision makers in a company or agency.

Uncertainty and Probability

Uncertainty is a problem that occurs due to the following factors; data loss, inaccurate or invalid data, ambiguous data, data that is vulnerable to change, subjective data and data obtained from the wrong process (Hendra, Parapat, & Juniansha, 2020). Almost the same as uncertainty, probability is the possibility or probability of the occurrence and non-occurrence of an event. Probability can be defined by the number of events that occur divided by the total number of events (Hartigan, 2020). Uncertainties and probabilities are usually resolved using the following methods; Bayesian probability, fuzzy logic, certainty factor and event theory (Samsudin, Ab. Halim, & Khalid, 2021).

Method

Solving the problems in this article is carried out using several stages of research which are arranged as follows:

- The problem identification stage is carried out to identify the problems to be discussed, this stage produces a problem formulation, problem boundaries to problem solving objectives
- The second stage is data collection, where data collection is carried out using 2 techniques, namely literature studies and field studies by conducting interviews with parties who have the authority and competence in the field.
- Analysis and Results Stage, this stage describes how to formulate a new concept which is the implementation of artificial intelligence techniques on the problem of determining the value of truth and untruth or fatma which explains the religious law of an event whose law is still unclear. There are several techniques used to solve this problem, including: fuzzy logic, Uncertainty and Probability
- The conclusion stage that explains the successful application of artificial intelligence techniques in solving the problems discussed

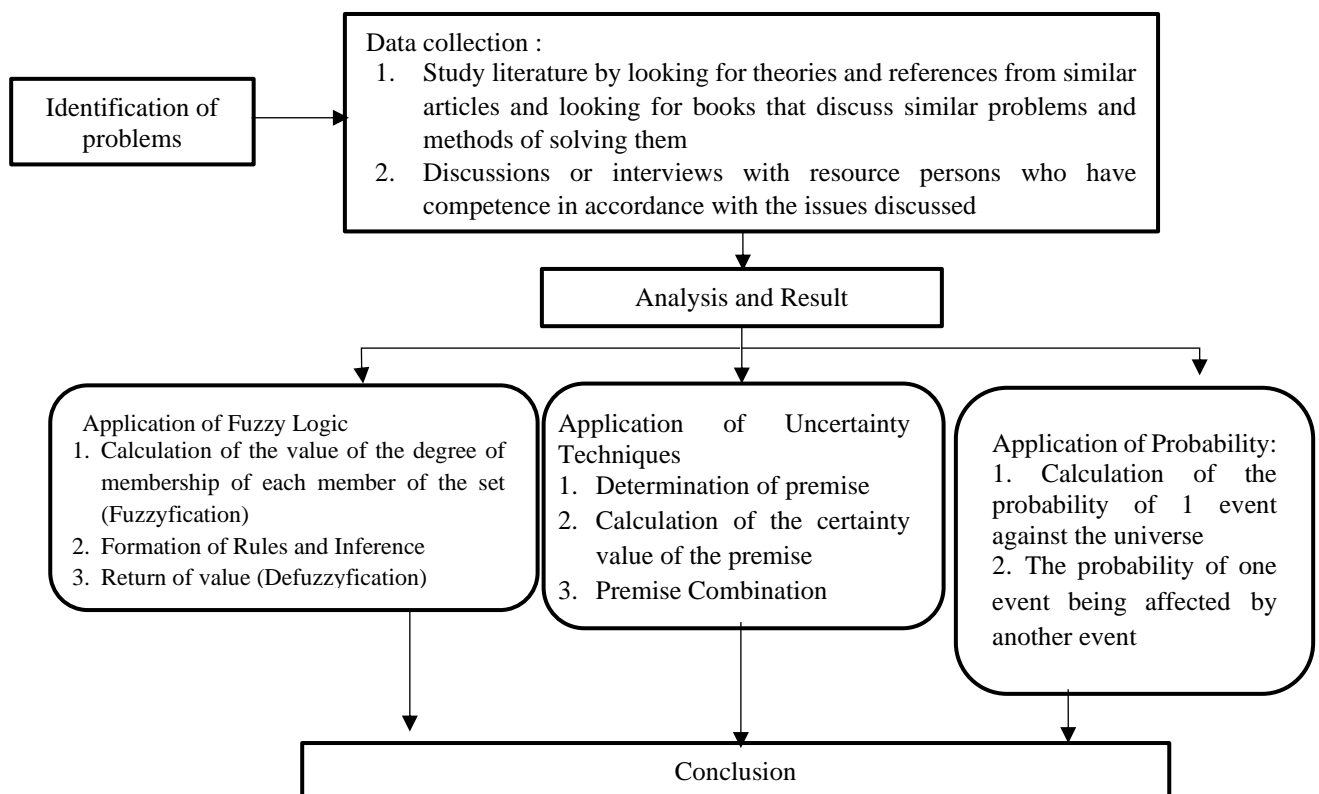


Figure 1: Stage of research methodology

Result and Discussion

The analysis carried out is to explain the application of techniques from the field of artificial intelligence to search for the truth and untruth values of a problem or to determine a fatwa that contains the law of an event that is still unclear. By using techniques from artificial intelligence, it is hoped that the computer will later be able to help determine the value of truth and untruth or religious law from an event more objectively.

Application of Fuzzy Logic

Fuzzy logic will be applied to determine the truth or untruth value of an event. The steps for implementing fuzzy logic to solve these problems include:

- a. Determine the fuzzy set where the set is formed from the data of each variable. Variables are determined by the factors that are considered for determining the decision.

Example :

Fuzzy variables (X, U, R(x))

x = variable name (positive impact and negative impact of the problem)

U= universe set (all effects)

R(x) = fuzzy set of U

- b. Determine the degree of membership of each member of the set.

$$f(x, a, b, c, d) = \begin{cases} \frac{x-a}{b-a}, & a \leq x < b \\ 1, & b \leq x \leq c \\ \frac{d-x}{d-c}, & c \leq x \leq d \\ 0, & x < a \text{ or } x > d \end{cases} \quad f(x, a, b, c) = \begin{cases} 0, & x < a \\ \frac{x-a}{b-a}, & a \leq x \leq b \\ \frac{c-x}{c-b}, & b < x \leq c \\ 0, & x > c \end{cases}$$

The degree of membership is calculated using the formula :

- c. Define rules and inference Rule 1

IF x is A (the value of the degree of membership of A)

OR y is B (the value of the degree of membership of B)

THEN z is C (the value of the degree of membership of C)

Then the formula is:

$$\mu_C(z) = \max [\mu_A(x), \mu_B(y)] = \max [\text{membership degree A, membership series B}]$$

Rule 2

IF x is A (the value of the degree of membership of A)

AND y is B (the value of the degree of membership of B)

THEN z is C (the value of the degree of membership of C)

Then the formula is :

$$\mu_C(z) = \min [\mu_A(x), \mu_B(y)] = \min [\text{membership degree A, membership series B}]$$

- d. Returning the fuzzy value to the original value (Defuzzification).

Defuzzification can be done using the Mamdani, Sugeno, Tsukamoto method or other methods.

Uncertainty and Probability

The uncertainty and probability method used in determining the truth and untruth value or religious law of an event in this article is Bayesian probability theory. The general formula of Bayesian probability will be changed by determining the probability of truth and probability of being false. The formula can be seen as follows :

$$p(H|E) = \frac{p(E|H)xp(H)}{p(E)}$$

$P(H|E)$ = The probability that the truth of H occurs if the untruth of E occurs

$P(E|H)$ = The probability that E's untruth occurs, if H's truth occurs

$P(H)$ = The probability of the truth of H regardless of any untruth E

$P(E)$ = The probability of untruth E regardless of anything.

Conclusion

Based on the analysis and results described in the previous stage, several conclusions can be drawn, including:

1. Artificial intelligence techniques can be applied to find new concepts in determining the truth and untruth values of a problem
2. Artificial intelligence techniques are able to generate new concepts that can be used to help the authorities to determine the fatwa of an event whose law is still unclear.
3. This research needs to be continued to prove the accuracy of calculating the value of truth and untruth or to prove the determination of the legal fatwa of an event by looking at the complete facts.

Reference

- Dewi, A. O Devianto, Y., & Dwiasnati, S. (2020). Kerangka Kerja Sistem Kecerdasan Buatan dalam Meningkatkan Kompetensi Sumber Daya Manusia Indonesia. *IncomTech: Jurnal Telekomunikasi dan Komputer*, 10(1).. (2020). Kecerdasan Buatan sebagai Konsep Baru pada Perpustakaan. *ANUVA*, 4(4).
- Drs. A.Sutanto, M. (2019). *Filsafat Ilmu : Suatu Kajian Dalam Dimensi Ontologis, Epistemologis dan Aksiologis*. Jakarta: Bumi Aksara.
- Hartigan, J. (2020). *Bayes Theory*. New York, Berlin, Heidelberg, Tokyo: Springer-Verlag.
- Hendra, Y., Parapat, A., & Juniansha, D. (2020). SISTEM PAKAR UNTUK DIAGNOSA PENYAKIT KEJIWAAN DENGAN MENGGUNAKAN METODE TEOREMA BAYES. *Jurnal SIMIKA*, 3(1).
- Qamaruzaman, M. H., & Sam'ani. (2018). Sistem Pakar Untuk Mendiagnosa Penyakit Mata Pada Manusia Menggunakan Teorema Bayes. *Indonesian Journal on Networking and Security*, 5(4).
- Rahman, M. T. (2020). *Filsafat Ilmu Pengetahuan*. Bandung: Prodi S2 Studi Agama-Agama UIN Sunan Gunung Jati.
- Rahmawati, Rahma, A. N., Suryani, I., & Sari, Y. (2020). PENERAPAN LOGIKA FUZZY DALAM MENENTUKAN JUMLAH PESERTA BPJS KESEHATAN MENGGUNAKAN FUZZY INFERENCE SYSTEM SUGENO. *Lebesgue : Jurnal Ilmiah Pendidikan Matematik*, 1(3).
- Ratanajaya, D., & Wibawa, H. A. (2018). Implementasi Kecerdasan Buatan dalam Menentukan Aksi Karakter pada Game RPG dengan Logika Fuzzy Tsukamoto. *Khazanah Informatika : Jurnal Ilmu Komputer dan Informatika*, 4(1).
- Ririh, K. R., Laili, N., Wicaksono, A., & Tsurayya, S. (2020). STUDI KOMPARASI DAN ANALISIS SWOT PADA IMPLEMENTASI KECERDASAN BUATAN (ARTIFICIAL INTELLIGENCE) DI INDONESIA. *J@ti Undip: Jurnal Teknik Industri*, 15(2).
- Samsudin, N. M., Ab. Halim, A. H., & Khalid, R. M. (2021). Adakah Kecerdasan Buatan Boleh Berfungsi sebagai Penasihat Syariah? Analisis Peranannya dalam Sektor Pasaran Modal Islam. *ISLAMIYYĀ*, 43(01).
- Simanjuntak, C., & Riandari, F. (2021). Sistem Pakar Mendiagnosa Penyakit Keputihan Pada Wanita

- Dengan Metode Teorema Bayes. *Jurnal Nasional Komputasi dan Teknologi Informasi*, 4(2).
- Sulardi, N., & Witanti, A. (2020). SISTEM PAKAR UNTUK MENDIAGNOSIS PENYAKIT ANEMIA MENGGUNAKAN TEOREMA BAYES. *Jurnal Teknik Informatika JUTIF*, 1(1).
- Taufiq, G. (2016). IMPLEMENTASI LOGIKA FUZZY TAHANI UNTUK MODEL SISTEM PENDUKUNG KEPUTUSAN EVALUASI KINERJA KARYAWAN. *Jurnal Pilar Nusa Mandiri*, XII(1).
- Utama, D. D. (2021). *Logika Fuzzy Untuk Model Penunjang Keputusan*. Yogyakarta: Garudhawaca.