

بِسْمِ اللَّهِ الرَّحْمَنِ الرَّحِيمِ

إِسْتِهْلَالٌ

قال تعالى :

(اللَّهُ الَّذِي يُرْسِلُ الرِّيَّاحَ فَتُثِيرُ سَحَابًا فَيَبْسُطُهُ فِي السَّمَاءِ كَيْفَ يَشَاءُ وَيَجْعَلُهُ كِسْفًا فَتَرَى الْوَدْقَ يَخْرُجُ مِنْ خِلَالِهِ فَإِذَا أَصَابَ بِهِ مَنْ يَشَاءُ مِنْ عِبَادِهِ إِذَا هُمْ يَسْتَبْشِرُونَ)

(الروم: 48)

Dedication

I am delighted to express my love and appreciation for expressing myself as I dedicate this research to high personalities

To my father:

Who carried me in warm-heartedness and planted me in the dark of the eyes...

to my mother:

Which does not break its heart by supplication and invocation to me always...

To brothers and sisters:

Who enlightened me the way of the future

My wife and daughter:

They are a part of which I cannot live without them

Professors:

Who have escaped from the seas of their vast knowledge as far as I can

Friends and colleagues:

To all who contributed and cooperated in producing this research, I give you this humble work.

Researcher

Thanks and gratitude

Thanks to the Almighty god by and after, human teacher, as far as exalt God in the heavens and on earth.

I would like to thank all those who participated in the preparation of this research to come to light, Beginning with the Sudan University of Science and Technology, and especially thanks to:

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المستخلص:

يعد المنطق الضبابي واحد من انجح تقنيات اليوم في تطوير أنظمة التحكم المعقدة بما في ذلك يكون مناسباً للعمليات التقديرية مثل المناخ وغيره.

عملت الدراسة علي تحليل بيانات المناخ بولاية الخرطوم لسنة 2018م باستخدام المنهج التحليلي الوصفي المتمثل في المنطق المبهم بواسطة برنامج ماتلاب كما هدف البحث ان يكون نموذجاً ضبابياً يستطيع التنبؤ بأحوال المناخ ولتحقيق ذلك افترض البحث ان المنطق الضبابي اكثر تناسباً مع العمليات العشوائية مثل المناخ.

تم استخدام مدخلين ومخرج واحد وكانت دوال الانتماء ثلاثة في كل مدخل حيث تمثل (اقل ومتوسط وعالي) واخذت الشكل المثلثي في حدود دالة الانتماء.

بشكل عام فإن هذا الاسلوب قدم اختياراً دقيقاً لأفضل طريقة تقديرية للأمطار وبذلك يصبح سهل الاستخدام في اتخاذ القرارات بعد ازالة الغموض من المعلومات المطلوبة.

تمثلت أهم النتائج التي توصل إليها البحث ان نتائج وكفاءة الدالة الضبابية كانت جيدة في عملية تحديد قيمة انتماء كل من درجة الحرارة والضغط كما وصي البحث بعمل مزيج بين المنطق الضبابي واليات الذكاء الاصطناعي الاخري لزيادة عملية التحكم والتنبؤ.

Abstract:

Fuzzy logic is one of the most successful technologies today in the development of complex control systems, including suitable for discretionary processes such as climate and others.

The study worked on analyzing the climate data in Khartoum State for the year 2018 using descriptive analysis methodology represent of the fuzzy logic by Matlab program.

The research objective estimate fuzzy model to predict of weather and to verify that the research suppose the fuzzy logic it more suitable for weather.

Two inputs and one output were used, and the three functions for each were entrance ,they represented (lower, intermediate, and higher) and took the triangular shape within the boundaries of the function of relationship.

In general, this method has provided an accurate choice for the best estimate of rainfall and thus becomes easy to use in decision-making after defuzzification information.

The main results of the research is efficiency of the fuzzification function were good in determining the value of relationship to both temperature and pressure, the research also recommended a combination of fuzzy logic and other artificial intelligence mechanisms to increase control and prediction.

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