



# Abdul Khaiyum Bin Baharom

Student of Intelligence System Engineering

Melacca, Malaysia` icefrogtail@gmail.com

## Profile

An independent student that has the ability to improvise in any situations and have the comitment to complete any incoming task and utilize every skills acquired throughout his journey especially in the field of data analytic and machine learning. Able to multitask effectively and bring several simultaneous installation and repair projects to completion with a good accuracy and efficiency.

## Employment History

Apr 2014 – Present

Sungai Udang, Malacca, MY

### Sales & Marketing at KZ Kad Kahwin ent.

- Serves in managing advertisement, promotions and sales for wedding card printing that focus on customer contact to drives sales
- Managing company websites

May 2014 – Sep 2017

Taman Rebana Jernih, Kuala Sg. Baru, Malacca, MY

### Computer Technician at Baharom Ceria Ent. (PC Solution)

- Installing software or hardware
- Maintaining and repairing equipment
- Troubleshooting different computer / cctv issues
- Determining and installing appropriate security measures

## Education

Aug 2016 – Present

Shah Alam, Selangor, MY

### University Technology MARA

Bachelor of Information technology (Hons) Intelligent System Engineering

- Faculty of Computer and Mathematical Sciences
- Current CGPA 2.92 ( Transcript will be given for whole semester and course taken)

2015 – 2016

Londang, Masjid Tanah, Malacca

### Malacca Matriculation College

- Graduated in 2016
- Science Stream (Module 3)
- CGPA 2.89

## Details

Si. 149 Bt. 25 Kampung Air Molek, Kuala Sg. Baru

Melacca, 78200, Malaysia`

+013 - 3797635

Date / Place of birth

Oct. 1996

## Links

kzkadkahwin.com

## Skills

Computer Technician



Computer Programming



Data Analytic



Design Skills



Presentation



Creative and Critical Thinker



Cooperative Team Member



## Languages

Malay



English



Japanese



Jan 2008 – Dec 2013

Kuala Sg. Baru, Malacca

Sek. Men. Kebangsaan Rahmat

Sijil Pelajaran Malaysia (SPM) 2A, 5B, 1C, 1D

Penilaian Menengah Rendah (PMR) 3A, 5B

## Programming Languages and Tools

### Programming Languages

- Python / R
- C / C++ / Java
- PHP / JavaScript / HTML / CSS

### Tools

- SPSS
- WEKA / RapidMiner / Hadoop / MATLAB
- Adobe After Effect / Flash / Dreamweaver
- Android Studio
- MS Visual Studio
- MongoDB
- HPCC
- AmazonEMR

## Extra-curricular activities

2017 – 2018

Faculty Science Computer &  
Mathematics

### KAYAK in Inter-Faculty Sports Competition

- Manager
- Athletes

2017

Shah Alam, Selangor

### Latihan Bakal Komander in UiTM

- Komander Kembara

2015

Londang, Masjid Tanah,  
Malacca

### Creativity and Innovative Tournament in Malacca Matriculation College

- DIY SOSCharger Project
- Portable power supply

2015

State of Sabah, MY

### Kinabalu Park in Mount Kinabalu, Sabah

Has Climbed Low's Peak, the summit of Mount Kinabalu (4095.2M)

## Project

2018 – 2019

### ARTIFICIAL REEF SITE SELECTION SUITABILITY AND CORAL SURVIVABILITY USING FUZZY EXPERT SYSTEM

- Identify the factors that associate with artificial reef site selection suitability and coral survivability.
- Design a fuzzy inference engine for artificial reef site selection suitability and coral survivability.
- Develop a system able to determine the artificial reef site selection suitability and coral survivability.

## References

[Baharom Ceria Ent.](#)

Mr. Baharom Bin Karim

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[KZ Kad Kahwin](#)

M. Khairun Bin Baharom

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Lecturer Shamimi A. Halim

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03-55211202

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Dr. Azliza Mohd Ali

azliza@tmsk.uitm.edu.my  
03-55211215

SEMESTER 1   GPA : 3.06	
<b>FUNDAMENTALS OF COMPUTER SCIENCE</b>	B
<b>FUNDAMENTALS OF COMPUTER PROBLEM SOLVING</b>	A
<b>ISLAM AND ASIAN CIVILIZATION</b>	A
<b>OUTWARD BOUND KESATRIA I</b>	A+
<b>CALCULUS I</b>	B-
<b>PRINCIPLES AND PRACTICE OF MANAGEMENT</b>	C
<b>APPLIED PROBABILITY AND STATISTICS</b>	B-

SEMESTER 2   GPA : 2.42	
<b>INTERMEDIATE FINANCIAL ACCOUNTING AND REPORTING</b>	C
<b>INTRODUCTION TO INTERACTIVE MULTIMEDIA</b>	A-
<b>OBJECT-ORIENTED PROGRAMMING</b>	C
<b>OUTWARD BOUND KESATRIA II</b>	A+
<b>FUNDAMENTALS OF INFORMATION SYSTEMS DEVELOPMENT</b>	C+
<b>INTRODUCTION TO DATA COMMUNICATION AND NETWORKING</b>	C
<b>LINEAR ALGEBRA I</b>	C

SEMESTER 3   GPA : 2.97	
<b>DISCRETE STRUCTURES</b>	C
<b>MALAYSIAN HISTORY</b>	B-
<b>ENGLISH FOR CRITICAL ACADEMIC READING</b>	B+
<b>OUTWARD BOUND KESATRIA III</b>	B+
<b>FUNDAMENTALS OF INFORMATION SYSTEMS</b>	B-
<b>FUNDAMENTALS OF ARTIFICIAL INTELLIGENCE</b>	B-
<b>KNOWLEDGE - BASED SYSTEMS</b>	A-
<b>INTRODUCTORY JAPANESE (LEVEL 1)</b>	A

SEMESTER 4   GPA : 2.81	
<b>ENGLISH FOR ORAL PRESENTATIONS</b>	B-
<b>NATIONAL KESATRIA IV</b>	L
<b>ETHICS IN ISLAMIC BUSINESS</b>	B-
<b>ARTIFICIAL NEURAL NETWORKS</b>	B
<b>DATA MINING</b>	B-
<b>FUZZY LOGIC SYSTEMS</b>	C+
<b>STATISTICS FOR BUSINESS</b>	B-
<b>INTRODUCTORY JAPANESE (LEVEL 2)</b>	A

SEMESTER 5   GPA : 3.37	
PROJECT FORMULATION	A
PROGRAMMING FOR DATA SCIENCE	B-
ENGLISH FOR REPORT WRITING	B-
BUSINESS DATA ANALYTICS	A-
EVOLUTIONARY ALGORITHMS	A-
INTELLIGENT DECISION MAKING SUPPORT SYSTEMS	B+
INTRODUCTORY JAPANESE (LEVEL 2)	B+

SEMESTER 6   GPA : -	
PROJECT	-
ENGLISH EXIT TEST	-
TECHNOLOGY ENTREPRENEURSHIP	-
IT PROJECT MANAGEMENT	-
ETHICAL, SOCIAL, AND PROFESSIONAL ISSUES	-
SPECIAL TOPIC IN ARTIFICIAL INTELLIGENCE	-

SEMESTER 7   GPA : -	
INDUSTRIAL TRAINING	-



**Artificial Reef Site Selection Suitability and Coral  
Survivability Using Fuzzy Expert System**

Abdul Khaiyum Bin Baharom

Supervisor:



Shamimi A. Halim  
shamimi@tmsk.uitm.edu.my

Coral reefs are extremely complex systems, characterized mostly by complex interactions between biotic and abiotic components. This project research testing a new study approach on coral and supported by artificial reef usage combining with fuzzy expert system and big data. Coral is part of the importance organism that we need to protect. In order to achieve this goal, fuzzy expert system model are build with the integration of big data into the model can lead a greater study and enhance the capability of ocean coral conservationist and researcher to help our coral to stay healthy and breed them by introducing new places which is artificial reef. There is four input variables used were seawater temperature, pH value, depth of the ocean floor from the surface and the salinity of the seawater. Each variable was divided into several fuzzy sets. For each of the dataset that has vast amount of data are plot into world map that act as input combinations that will estimate the Artificial Reef site placement suitability and the coral survivability. This project was consulted by domain expert with a thorough knowledge by the local reef researcher. However this system can be improved continuously and it appears by getting real time data can avoid and increase the efficiency and accuracy of the result spontaneously make it beneficial and contribute to education, science and management.

## System Development

The system development phase will discuss more on the implementation process of the fuzzy inference engine to be transform into hardcode prefix by using certain programming language which is JavaScript, jQuery, HTML and Google Maps API.

### Fuzzy Engine Transformation

The fuzzy inference engine transformation phase involve in coded all the fuzzy engine architecture into functioning engine using JavaScript. (Refer Figure below)

```
function getM(max,min){
var m;
m = 1/ (max - min);
return m;
}
function getC(min,m){
var c;
c = -(m * min);
return c;
}
function getY(max,min,x)
{var m;
var c;
var y;
m = getM(max,min);
c = getC(min,m);
y = (m * x)+c;

```



```

function countcog(){
var cog = 0;
var cog2 = 0;
var i;
for(i = 0 ; i <= 100;i += 10)
{
if(i <= endsurlow){
cog = cog + (surlow * i);
cog2 = cog2 + surlow;
}else if( i < endsurmedium1){

    if(endsurlow < surmedium){
cog = cog + (getY(maxsurmedium,minsurmedium1,i) * i);
cog2 = cog2 + getY(maxsurmedium,minsurmedium1,i);
}else{
cog = cog + (getY(maxsurlow,minsurlow,i) * i);
cog2 = cog2 + getY(maxsurlow,minsurlow,i);
}

}else if(i <= endsurmedium2){
cog = cog + ( surmedium * i);
cog2 = cog2 + surmedium;
}else if(i <= endsurhigh){

    if(surmedium < surhigh){
cog = cog + (getY(maxsurhigh,minsurhigh,i) * i);
cog2 = cog2 + getY(maxsurhigh,minsurhigh,i);
}else{
cog = cog + (getY(maxsurmedium,minsurmedium2,i) * i);
cog2 = cog2 + getY(maxsurmedium,minsurmedium2,i);
}
}else{
cog = cog + ( surhigh * i);
cog2 = cog2 + surhigh;
}
}
}

```

**Figure Partition of COG function coded using JavaScript**

Next, is building a code where calculation of COG in defuzzification process coded using JavaScript to get the out percentage of Artificial Reef Site Selection Suitability and Coral survivability in percentage (%). The formula used can be referred in Figure below.

$$\text{COG} = \frac{\sum_{x=a}^b \mu_A(x)x}{\sum_{x=a}^b \mu_A(x)}$$

**COG defuzzification formula**

The COG based on formula in Figure above shown that COG is calculated over a continuum of points for the calculation of output that able to estimate by calculating it over a sample points.

## Interface development

Next the integration of the fuzzy engine and dataset using jQuery, HTML, CSS and Google Map API to make a versatile Google Map with marker and integration with system engine.



### jQuery implementation

Based on Figure above jQuery implementation is coded to build a prefix graph that will changing based on input applied by the user. The coded can be called and used in HTML and the usage of CSS for better interactive interface.



**Google Map API to plot marker**

Google Map API key are implemented to use Google Map as the interface system for this project and the implementation of big data which admin stored coral data and information to be plot as marker in the map. This allowed the system can be continuously update with the latest dataset into the system. This implementation also allow the user to analyses and manages the information and output shown that provide maximum utility to the management and science community that act as distribute and display the collected information in a good manner with the help of fuzzy graph as the system process representation.

# System Interface

Lesser data are plot to see the system is working properly on the intergration with the fuzzy engine and show the result based on the input given.

## ARTIFICIAL REEF SITE SELECTION SUITABILITY AND CORAL SURVIVABILITY



