

MODELING THE AESTHETIC VALUE OF  
WEB PAGE USING FUZZY LOGIC  
AND NEURAL NETWORK

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USING FUZZY LOGIC AND NEURAL NETWORK**

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## **MODELING THE AESTHETIC VALUE OF WEB PAGE USING FUZZY**

### **LOGIC AND NEURAL NETWORK**

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Since there are different opinions between the artist and the scientist concerning the issue of aesthetics modeling, these two groups have constantly been paying great effort to seek for a connective method to resolve this gap in a satisfactory cum applicable manner. As for this reason, in this dissertation a novel approach of modeling the aesthetic value of Web page based on its layout, color combinations, and font type usages was proposed. The ultimate aim of this research is to bridge the diverse domains between art and science using the objective measurements on subjective matter.

In this study, survey experiments were employed to evaluate and model the aesthetic value of the selected home pages. The first pilot experiment was focused on the layout perspective which involves two groups of respondents, i.e. non-expert and expert. While the second and third experiments which engaged only non-expert respondents, expanded the measurement attributes to color combinations and font type usage. The second experiment served as a platform to acquire the characteristics of the bad and good

attributes of each screen. These obtained characteristics were then being referred as the decisive elements in choosing the predefined screens' aesthetics classes in the third experiment for hypotheses testing. It should be noted, all the non-expert respondents were the undergraduate students from the Bachelor of Information Technology (Software Engineering) in Universiti Malaysia Terengganu, (UMT). Besides that, fuzzy logic technique and neural network were also employed to further improve this study.

From the obtained survey experimental results, it was shown that several design principles were found to be significantly contributing to the Web screen's aesthetics, such as the layout's overall measurement, the number of colors and content's font types used in a screen. In addition, as for the part of fuzzy logic and neural network, these approaches have demonstrated its capability to imitate human behavior in decision making.

It was found that, taken the final results together, it has yet to reach a very momentous impact on the area of Web aesthetics. However it is implicit that the underlying values of aesthetics in Web design will be better understood when the bond of measurable quantities and human perception were being studied in a quantitative way.

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**PEMODELAN NILAI KEINDAHAN LAMAN WEB DENGAN  
MENGUNAKAN LOGIK KABUR DAN RANGKAIAN NEURAL BUATAN**

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Disebabkan terdapatnya perbezaan pendapat di antara artis dan saintis terhadap isu pemodelan keindahan, maka kedua-dua kumpulan ini telah berusaha untuk mendapatkan satu kaedah bagi menyelesaikan percanggahan pendapat di antara mereka. Oleh demikian, dalam disertasi ini satu pendekatan novel bagi pemodelan nilai keindahan laman Web yang berdasarkan bentangan laman, kombinasi warna, dan kegunaan jenis fon telah dicadangkan. Matlamat utama kajian ini adalah untuk menghubungkan perbezaan domain yang wujud di antara bidang seni dan sains dengan menggunakan pengukuran objektif ke atas perkara yang subjektif.

Dalam kajian ini, eksperimen berdasarkan tinjauan telah dijalankan bagi menilai serta memodel nilai keindahan laman Web yang terpilih. Eksperimen pertama yang dijalankan bertumpu kepada bentangan laman yang melibatkan dua kumpulan responden, seperti kumpulan pakar dan tidak pakar. Manakala eksperimen kedua dan ketiga hanya

bertumpu kepada responden yang tidak pakar, tumpuan eksperimen-eksperimen ini telah diperluaskan dengan adanya kombinasi warna serta kegunaan jenis fon. Eksperimen kedua dijadikan pentas untuk memperoleh ciri-ciri skrin yang baik dan kurang baik. Ciri-ciri yang telah diperolehi kemudiannya dijadikan rujukan bagi eksperimen ketiga dalam pemilihan laman Web yang berdasarkan kategori keindahan masing-masing untuk pengujian hipotesis. Semua responden tidak pakar adalah terdiri daripada graduan dari Sarjana Muda Teknologi Maklumat (Kejuruteraan Perisian) di Universiti Malaysia Terengganu, (UMT). Selain itu, teknik logik kabur dan rangkaian neural buatan juga telah digunakan demi mempertingkatkan hasil kajian ini.

Berdasarkan keputusan eksperimen-eksperimen yang dijalankan, beberapa prinsip reka-bentuk, contohnya susunan laman yang berdasarkan ukuran keseluruhan, bilangan penggunaan warna dan jenis pasuan telah didapati menjadi penyumbang kepada nilai estetik laman Web. Di samping itu, teknik logik kabur dan rangkaian neural buatan berupaya mendemonstrasikan tingkah-laku manusia dalam membuat keputusan.

Berdasarkan keputusan-keputusan yang didapati, walaupun ia masih belum mencapai satu impak yang penting dalam bidang keindahan laman Web, tetapi pemahaman nilai keindahan dalam laman Web akan menjadi lebih mudah apabila hubungan pengukuran kuantiti dan persepsi manusia dikaji dengan menggunakan satu kaedah kuantitatif.