

<b>Miri Weiss Cohen</b>	<b>An Intelligent Learning Design Support System for Jewelry Features</b>
<p><b>Topic: Computer Aided Design</b></p> <p><b>Authors:</b>  <b>Miri Weiss Cohen</b>,  Braude College of Engineering  Dept. of Software Engineering  Israel  miri@braude.ac.il</p> <p><b>Einat Leader</b>  Bezalel Academy of Art and Design Jerusalem  Dept. of Jewellery and Fashion  Israel  d_e_goss@netvision.net.il</p> <p><b>References:</b>  [1] Eysenck, HJ., The Measurement of Creativity, in MA Boden, <i>Dimensions of Creativity</i>, The MIT Press, pp. 199-242, 1994  [2] Srinivas, M. and Pootraik, L. M.: Genetic algorithms: A survey, <i>IEEE Computer</i> (1994), 17–26  [3] Aamodt, E. Plaza 'Case-Based Reasoning System Approaches'. AI Communications. IOS Press, Vol. 7: 1, pp. 39-59.</p>	<p><b>Abstract:</b></p> <p>This work presents an Artificial Intelligence aesthetic-driven Decision Support System (DSS) for jewelry design. "Creativity denotes a person's capacity to produce new or original ideas, insights, inventions, or artistic products, which are accepted by experts as being of scientific, aesthetic, social, or technical value"[1].</p> <p>Manual design of jewelry is in wide use, and requires creativity, craftsmanship, and is time consuming. When compared to designing using Computer Aided Design (CAD) systems, CAD systems, provide the designer with realistically rendered features which are available from various viewpoints, giving the designer a clear understanding of the final result. Tools for options of transforming each one of the features, are provided instantly.</p> <p>Our approach is to try to understand design creativity by —mimicking it, using Artificial Intelligence (AI). Our goal is to build a Learning Decision Support System (DSS) which can be used to experiment the processes of a wide range of influences on the designed jewelry feature. We use Genetic Algorithms [2], in which, each chromosome is constructed with a wide range of geometric features, composition factors, symmetry and provided ratios. Each of the resulting changes on the designs is stored, by choice of the designer, and a learning framework is established for future work. The learning process is based on Case Based Reasoning (CBR) [3], where a character of the designer is learned by the system and produces a designers hypothesis. The proposed system is to be embedded in a CAD system and is aimed to provide the designer an ability to a more intelligent tool.</p>
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