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Industrial Design

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Professor Michael Tovey

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Main Duties:

Profile

Michael Tovey is responsible for leading on and co-ordinating design education and applied research across the University. His discipline base is in Industrial Design. Following a period of practice in industry, he came to Coventry and was responsible for the establishment and development of transport design. This has now achieved international prominence and centre of excellence status.

He was one of the first in his discipline to develop an interest in research into areas of design representation. He has contributed publications and held a number of research council grants. He has served on research council committees, supervised and refereed grants and publications.

Much of his research work has been concerned with how designers think. There has been a particular focus on the use of computer support for the creative aspects of design. The context for this work has been concept design in the automotive industry and the development of novel techniques to support the design activity. He pioneered the process for converting a portfolio of work into a PhD submission. This work is a useful summary of much of his research activity.

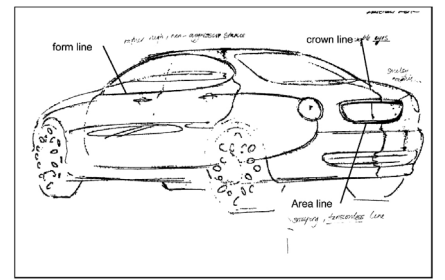
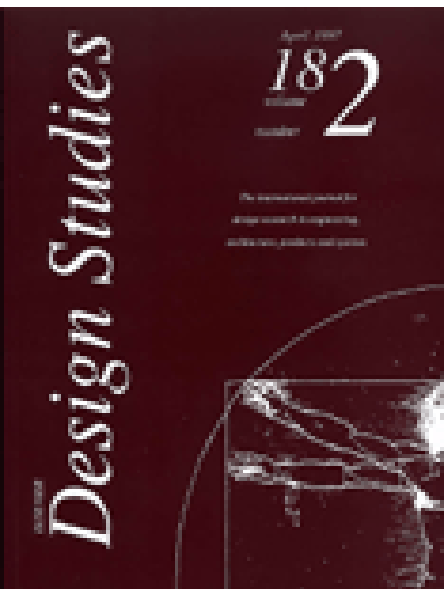
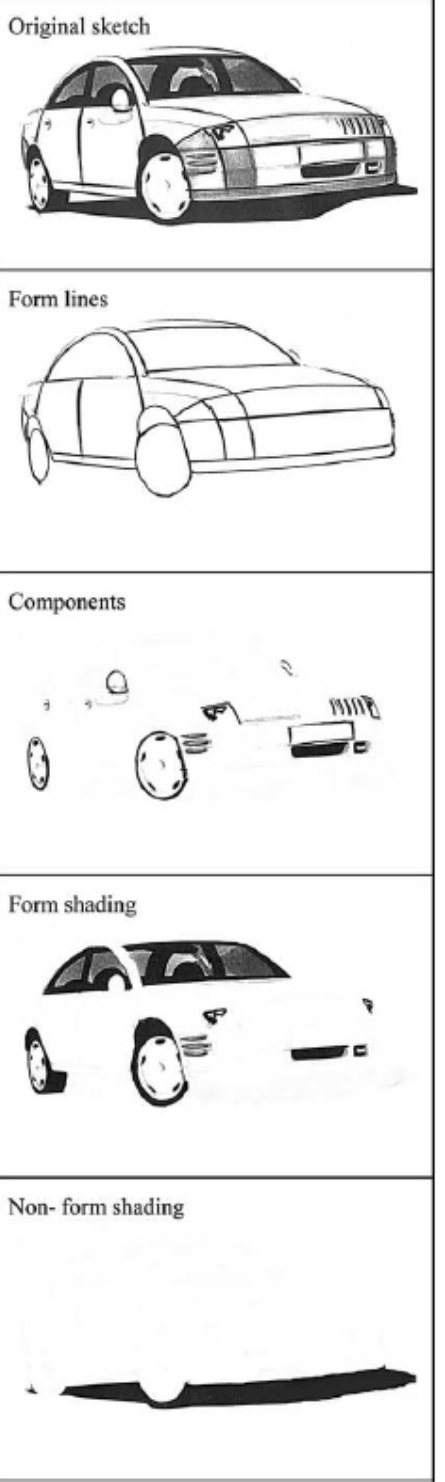


Figure 1. Example of line usage in a sketch



Sketching, concept development and automotive design

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Sketching and its key role in concept design are identified, and the particular circumstances of automotive design described. A brief summary of work in the general field of concept sketching and visual thinking is presented. The particular characteristics of automotive design sketches; form lines, crown lines, area lines, shading and colouring are described, and a de-layering analysis undertaken. This demonstrates the primacy of form lines in the automotive design sketch. Observations, by video, of post-graduate students and six professional designers while sketching confirm the importance of the form lines in the design process, the interactive and iterative nature of concept development and the central role of the activity of sketching in this process. It is proposed that the design of CAD systems to support concept development must take account of the importance of sketching activity.
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Keywords: conceptual design, drawing, visual thinking, automotive design, computer aided design

AI is the world's oldest trade magazine covering the global automotive industry. Est. 1895 - Windows Internet Explorer

http://www.ai-online.com/Adv/Previous/show_issue.php?id=2227

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Automotive Industries spoke to Professor Mike Tovey, Director for Design at Coventry University

by James Hilton

The UK-based Coventry University has long been recognized as a centre of excellence for automotive design. In 2005, the Higher Education Funding Council for England established 74 Centres for Excellence in Teaching and Learning or CETLs and Coventry University gained three of them. Its Centre of Excellence in Product and Automotive Design (CEPAD) was awarded more than £2.5million to set up its prestigious national centre.

Located in the School of Art and Design it was selected for the award because of its innovative work and international reputation in transport and product design. The aim of the project is to bring together the expertise of some of the most renowned car companies and leading universities in the world. "This grant has enabled us to fit out a Digital Interaction Studio. Our Virtualis stereo system will help our students to see where they need to make adjustments to their CAD models of cars, which are acknowledged to be among the most complex shapes to design. As an illustration, the VR system shows detailed reflections allowing analysis of the quality of surface, and ultimately design achieved," said John Owen, head of Industrial Design at Coventry in a press release.

Apart from offering degrees in automotive design and engineering, Coventry University also works closely with automotive companies in research and development. Coventry University has streamlined the process of getting industry involved in its research projects. Its Centres of Excellence play an important role in this by attracting investment to their projects.

Some of the companies with which Coventry University works with include ArvinMeritor, Corning, Engelhard, Ford Motor Company, Jaguar/Land Rover and Johnson Matthey. The university's s vehicle studies department works with computer simulation to investigate problems in predictive engineering in the areas of vehicle handling and safety. Projects make use of industry standard software including MSC.ADAMS (Automotive Dynamic Analysis of Mechanical Systems) for vehicle handling simulation and MADYMO for crash and impact studies.

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1 Tovey, M 'Intuitive and objective processes in automotive design' Design Studies Vol 13 No 1 (1992) 23-41

2 Hummels, C C M, and Overbeeke, C J Designing and testing human computer interaction: a case study in virtual clay modelling. In: Proc 31st International Symposium on Automotive Technology and Automation (ISATA) Automotive Automation Ltd, Croydon, UK (1998) pp 27-34.

3 Thomke, S 'Managing digital design at BMW design' Manage-

Much of the design theory and research work on sketching in design has been based on the domains of architectural design and engineering product design. None of it has drawn directly from the activities of automotive designers with the exception of Tovey¹. This is a specialised activity because of the particularities of the product form and, because of the high level of demarcation in the design and development process in the industry. Thus 'computer aided styling' has become a current phrase in the industry, by contrast with 'computer aided design' in other fields. Work on computer aided styling has tended to concentrate on providing three dimensional alternatives to sketching, such as 'virtual clay modelling' or simply conventional CAD surface modelling³. These