Back

TMCE 2002 - TABLE OF CONTENTS

CHAPTER 1 INTRODUCTION 1

Foreword iii

International Program Committee of TMCE 2002 Symposium v

International Paper Review Panel of TMCE 2002 Symposium iv

Table of contents viii

CHAPTER 2 INVITED PAPERS 1

Knowledge service in collaborative design: Resources for acquiring new knowledge 1
You-Bai Xie (CN)

Aesthetic design: Methods, tools and practices 11
Michael Tovey (co-authored by Samantha Porter) (UK)

Opportunities and challenges of knowledge management 21
Chris McMahon (co-authored by Alistair Lowe) (UK)

Opening the horizon of engineering numerical methods: Integrated multibody system and finite element analysis 35
Louis Komzsik (USA)

Ontology-based systematization of functional knowledge 45
Riichiro Mizoguchi (J)

Rapid prototyping: Yesterday, today, tomorrow 65
Ian R. Campbell (UK)

Trends, reality and future possibilities in manufacturing 75
Arne Novák (S)

CHAPTER 3 GENERAL ISSUES OF KNOWLEDGE ENGINEERING 89

Decomposing industrial design requirements related to form synthesis in a computer environment 89
Peter Schachinger (S)

Towards the reuse of shape information in CAD 103
Chensheng Wang, Imre Horváth, Joris S. M. Vergeest (NL)

Reengineering with rapid prototyping 117
Jože Duhovnik, Jože Tavčar (SI)

Development of an engineering portal for enterprise and department spanning business processes 131
Ullrich Pfeifer-Silberbach, Reiner Anderl, Bernhard Willi (D)

Knowledge management: Integration of expert knowledge into the development of environmentally sound products 143
Sebastian Leibrecht, Tri Ngoc Pham Van, Reiner Anderl (D)

Towards product-related knowledge asset warehousing in enterprises 155
Roderick Owen (UK), Imre Horváth (NL)

A knowledge base for rapid product development 171
Dieter Roller, Stavros Dalakakis, Oliver Eck (D)

Survey on product development methods, design competencies, and communication in Swedish industry 189
Jenny Janhager, Sara Persson, Anders Warell (S)

Techniques for freeform feature modelling 201
Eelco van den Berg, Willem F. Bronsvoort, Joris S. M. Vergeest (NL)

Delaunay triangulation based on elliptical transformation for curved surfaces 213
Zhao Jianjun, Zhong Yifang, Wu YiZhong (CN)

Construction of a manifold ship hull model, derived from a wireframe mesh 221
Herbert J. Koelman, Willem B. Soede (NL)

Generating blending surface based on physical energy minimization 229
Song Qiuzhi, Wu YiZhong, Wang Qifu, Chen Liping (CN)

Investigating automotive sketches as a source of geometry for 3D models 237
Michael Tovey, Samantha Porter, Robert Newman (UK)

Methodology support for form design development in industrial design engineering 247
Anders Warell, Mats Nåbo (S)

Verbal constraint management for shape conceptualization 261
Jouke Verlinden, Imre Horváth, György Kuczogi (NL)

Fuzzy solid modeling 273
Binh Pham (AU)

Fuzzy shape families 287
Bart H. M. Gerritsen (NL)

Physically-based operators for virtual clay modeling in a collaborative virtual design environment 299
Zoltán Rusák, Imre Horváth, György Kuczogi, Johan Jansson (NL)

A fuzzy genetic algorithm for creative shape design 315
Jinglan Zhang, Binh Pham, Phoebe Chen (AU)

Correlating shape parameters to customer preference 331
Joris S. M. Vergeest, René van Egmond, Raluca Dumitrescu (NL)

Visibility analysis as an aid for determining scanning strategy 339
Sébastien Remy, Alain Bernard, Gabriel Ris (F)

Analysis of final geometry due to welding process effects in sheet metal assemblies 351
Stefan Dahlström, Rikard Söderberg (S)

Specification for automatic verification and evaluation of plastic injection molding design 361
Yimin M. Deng, Graeme A. Britton, Yew. C. Lam (SG)

CHAPTER 4 KNOWLEDGE INTENSIVE DESIGN AND DEVELOPMENT 373

Autogenetic design theory - A contribution to an extended design theory 373
Steffen Clement, Sándor Vajna, Péter Mack (D)

Five dimensions in the communication of design intent 381
Kevin H. Hilton (UK)

Technology diffusion through industrial product design 391
Wim A. Poelman (NL)

A new mindset on product development 403
Stig Ottosson (S)

Product data management (PDM) system based support for engineering project management 419
Samir Mesihovic, Johan Malmqvist, Peter Pikosz (S)

An integrated approach to data mining based on rough set and neural network 429
Lu Guanghui, Xiao Renbin (CN)

A framework of agent–based data acquisition technology for manufacturing system 439
Youmin Hu, Runsheng Du, Shuzi Yang (CN)

Finite elements model of the human body: Geometry and neo-Hookean material properties 451
Niels C. C. M. Moes (NL)

Virtual product development using structural optimization - adaptive mesh refinement for topology optimization 469
Eckart Schnack, Peter Allinger (D)

Engineering design of a polycarbonate spring in a positioning device 481
Jan L. Spoormaker, Igor D. Skrypnyk, Kirill Kaveline (NL)

A study of coiling process on fine thread type of elastic materials for packaging industry 491
Hui Ming, Hung-Yao Hsu, Grier Lin, Barry J. Crook (AU)

Modelling and simulation of Biotics non-smooth surface to reduce draft resistance against soil 499
Li Jianqiao, Ren Luquan, Tong Jin, Chen Bingcong (CN)

Resource deployment in the earlier product design stages 509
Yiliu Tu, Juiin J. Kam (NZ), R. Y. K. Fung (HK), J. F Tang (CN

Critical consideration and improvement of the FMEA 519
Alois J. Breiing, Andreas M. Kunz (CH)

Application of workflow technology for partner selection in virtual enterprises 531
Li Li, Xue Jinsong, Zhu Yunlong (CN)

New methodologies for implementing mass customization 541
Ralph Seelmann-Eggebert, Michael Schenk (D)

The development of a quantitative method for product end-of-life strategy (EOLS) planning 551
Ke Xing, Lee H. S. Luong, Kazem Abhary (AU)

Modeling and running test of agile intelligent manufacturing cells 563
Rao Yunqing, Li Shuxia, Liu Shiping, Shi Ke, Li Peigen, Wu Bo (CN)

Distributed design support system for concurrent process of preliminary aircraft design 571
Kikuo Fujita, Shin'ichi Kikuchi (J)

Computer support for systematic design applied in a cross-functional commercial concept development project 585
Lars Almefelt, Krister Sutinen, Johan Malmquist (S)

Sensitization to the distributed development process 601
Daniel-Karl Fuchs, Udo Lindemann, Bernd Jokele, Reiner Anderl, Sven Kleiner (D)
Georges Fadel, Joel Greenstein (USA)

A multiple perspective product modelling and simulation approach to engineering design support 613
Xiu-Tian Yan (UK)

CHAPTER 5 KNOWLEDGE INTENSIVE ENGINEERING AND MANUFACTURING 623

Plastics design: Integrating TRIZ creativity and semantic knowledge portals 623
Gaetano Cascini, Nicola Pieroni, Paolo Rissone (I)

A general type of agent architecture 637
Liu Shiping, Rao Yunqing, Zhang Jie, Peigen Li (CN)

A key to understand the evolution of manufacturing: Efficiency from mass production to agile, reconfigurable manufacturing 643
Alessandro A. Urbani (I)

A multi-agent based distributed process planning system 653
Jie Zhang, Liang Gao, Peigen Li (CN)

Verbal interface for vague discrete shape modeler 663
György Kuczogi, Imre Horváth, Zoltán Rusák (NL)

The use of solids/surface modelling and virtual reality in industrial design 675
Paul Siodmok, Andrea Cooper (UK)

"Centralhuset": a virtual reality project at the building site 687
Stefan Woksepp, Odd Tullberg (S)

An intelligent virtual disassembly system based on assembly constraints 697
Guan Qiang, Liu Jihong, Cao Pengbin, Zhong Yifang (CN)

Acquisition and processing of requirements for the pre-implementation testing of design support systems 705
Eliab Z. Opiyo, Imre Horváth, Joris S.M. Vergeest (NL)

An industrial approach to advanced manufacturing and servicing technologies 719
Lorenzo Molinari-Tosatti (I)

Towards the development of a cultural innovation diagnostic tool 727
Bernadette Eckermann, Sev Nagalingam, Grier C. I. Lin (AU)

Workstation concept for specifications - Gateway for modular design of pharmaceutical equipment: A case study 741
Neil Calder, Sangarappillai Sivaloganathan (UK)

CAPP customization on the base of object-oriented approach 753
Alexander Sharmazanashvili (G)

Research on strategy of cost estimating in product design phase based on CAD/CAPP integration 765
Jiang Shaofei, Xu Youzhong, Pan Shuangxia, Feng Peien (CN)

CAD/CAM integration and its future with STEP-NC in shoe manufacturing industry: Side roughing and cementing 771
Dan Liu, Irene Fassi, Lorenzo Molinari Tosatti, Dulio Sergio, Claudio Robert Boër (I)

Exploration of influential parameters for speed control of the flexible blade cutting process 785
Han Broek, Imre Horváth, Bram de Smit (NL)

Direct laser sintering of Cu-W metal powder 797
Haihong H. Zhu, L. Lu, J. Y. H. Fuh, Y. X. Tang, Xinhua H. Wang (CN)

Internet based DFA for rapid development of mould products 805
Shengquan Q. Xie, Yiliu Tu (NZ), Z. D. Zhou (CN)

Optimization of composite manufacturing process with virtual manufacturing and design of experiments approaches 815
Chuck Zhang, Jihua Gou, Zhiyong Liang, Ben Wang, James Simpson (USA)

Telemanufacturing in a distributed manufacturing environment using design repositories 827
Emil E. Marais, E. M. Ehlers (SA)

Global competitive manufacturing on the basis of intelligent metrology and quality management as important tools 839
Herbert P. Osanna, Numan M. Durakbasa, Liangxin Si, Al-Sadat (A)