Sketch-Based Interfaces and Modeling 2010

ACM SIGGRAPH / Eurographics Symposium Proceedings

Annecy, France
June 7 – 10, 2010

General Chairs
Joseph J. LaViola, Jr. (University of Central Florida, USA)
Jean-Claude Léon (Grenoble University, France)

Program Chairs
Marc Alexa (Technische Universität Berlin, Germany)
Ellen Yi-Luen Do (Georgia Institute of Technology, USA)

Demo Chairs
Tracy Hammond (Texas A&M University, USA)
Levent Burak Kara (Carnegie Mellon University, USA)

EG SBIM Working Group Chair
Joaquim Jorge (Instituto Superior Tecnico, Portugal)

Proceedings Production Editors
Dieter Fellner (TU Darmstadt & Fraunhofer IGD, Germany)
Stephen Spencer (The University of Washington, USA)

Co-sponsored by ACM SIGGRAPH and the Eurographics Association
# Table of Contents

<table>
<thead>
<tr>
<th>Section</th>
<th>Page</th>
</tr>
</thead>
<tbody>
<tr>
<td>Table of Contents</td>
<td>iii</td>
</tr>
<tr>
<td>Preface</td>
<td>v</td>
</tr>
<tr>
<td>Sponsors</td>
<td>vi</td>
</tr>
<tr>
<td>Keynote</td>
<td>vii</td>
</tr>
<tr>
<td>Program Committee</td>
<td>viii</td>
</tr>
<tr>
<td>External Reviewers</td>
<td>viii</td>
</tr>
<tr>
<td>Cover Image Credits</td>
<td>ix</td>
</tr>
<tr>
<td>Author Index</td>
<td>xii</td>
</tr>
</tbody>
</table>

## From 2D to 3D Modeling

- Sketching Variational Hermite-RBF Implicits ........................................ 1
  *Emilio Vital Brazil, Ives Macedo, Mario Costa Sousa, Luiz Henrique de Figueiredo, and Luiz Velho*

- Stroke Extraction and Classification for Mesh Inflation ......................... 9
  *Luke Olsen and Faramarz F. Samavati*

  *Manfred Lau, Greg Saul, Jun Mitani, and Takeo Igarashi*

- Assisted Multitouch Image-Based Reconstruction .................................... 25
  *Frank Bauer and Marc Stamminger*

## Modeling Ink Paintings

- Folding Avoidance in Skeletal Strokes ............................................... 33
  *Paul J. Asente*

- Modeling 2.5D Plants from Ink Paintings .............................................. 41
  *Cristina Amati and Gabriel J. Brostow*

- Drawing with the Flow: A Sketch-Based Interface for Illustrative Visualization of 2D Vector Fields ......................................................... 49
  *David Schroeder, Dane Coffey, and Dan Keefe*

- Exploring Frame Gestures for Fluid Freehand Sketching ............................ 57
  *Menno Nijboer, Moritz Gerl, and Tobias Isenberg*
# Table of Contents

## Sketch Recognition - Ink Features

Feature Extraction and Classifier Combination for Image-based Sketch Recognition ........................................... 63  
*R. Sinan Tumen, M. Emre Acer, and T. Metin Sezgin*

Computing Confidence Values for Geometric Constraints for use in Sketch Recognition ............................... 71  
*Joshua Johnston and Tracy Hammond*

The Power of Automatic Feature Selection: Rubine on Steroids ................................................................. 79  
*Rachel Blagojevic, Samuel Hsiao-Heng Chang, and Beryl Plimmer*

## Sketch Recognition - Feasibility

Exploring Usability and Learnability of Mode Inferencing in Pen/Tablet Interfaces ......................................... 87  
*Matei Negulescu, Jaime Ruiz, and Edward Lank*

Rata.SSR: Data Mining for Pertinent Stroke Recognizers .............................................................................. 95  
*Samuel Hsiao-Heng Chang, Beryl Plimmer, and Rachel Blagojevic*

A Pen-Based Tool for Visualizing Vector Mathematics ................................................................................ 103  
*Jared N. Bott and Joseph J. LaViola Jr.*

## Sketching Human Figures

A Sketching Interface for Sitting-Pose Design ................................................................................................. 111  
*Juncong Lin, Takeo Igarashi, Jun Mitani, and Greg Saul*

Sketch-Based Recognition System for General Articulated Skeletal Figures ................................................. 119  
*Shane Zamora and Timothy Sherwood*

## Sketching in Virtual Environments

Shape Modeling with Sketched Feature Lines in Immersive 3D Environments ................................................ 127  
*Helen Perkunder, Johann Habakuk Israel, and Marc Alexa*

Investigating the Learnability of Immersive Free-Hand Sketching ............................................................. 135  
*Eva Wiese, Johann Habakuk Israel, Achim Meyer, and Sara Bongartz*

## Sketching in Practice

Inkus: A Freehand Method of Creating Business Process Models ................................................................ 143  
*Nicolas Mangano and Noi Sukaviriya*

Sketch-Based Modeling of Vascular Systems: a First Step Towards Interactive Teaching of Anatomy .......... 151  
*Adeline Pihuit, Marie-Paule Cani, and Olivier Palombi*