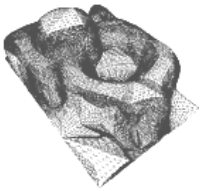
The Smart Graphics Enterprise

The International Symposium on Smart Graphics brings together people from the fields of Computer Graphics, Graphics Design, Cognitive Psychology and Artificial Intelligence, all working on different aspects of computer generated graphics. After a very successful AAAI Spring Symposium on Smart Graphics in 2000 the organizing committee decided to turn the event into a self-contained symposium. Last year's event (Smart Graphics 2001) attracted our target of 30 attendees. This was despite an unfortunate clash with the ACM I3DG conference. This year we aim to increase the number of attendees without creating a "conference" atmosphere, the number of attendees will be capped at 50. Seeing the Smart Graphics initiative taking off so dynamically, we are expecting a great number of varied and interdisciplinary submissions, and we are looking forward to the 2002 symposium, which is generously hosted by the IBM T.J. Watson Research Center.

Advances and breakthroughs in the area of Computer Graphics have made visual media a major ingredient of the modern user interface, and it is likely that graphics will play a dominant role in the way people communicate and interact with computers in the future. Especially the evolution of computing towards more and more pervasive and distributed devices pose new and challenging problems for the effective use of graphics. We believe that intelligent behavior and graphics will provide the technical core of next generation interfaces. But in order to make those interfaces successful, principles and findings from Cognitive Psychology and Graphics Design are equally important to reflect the user's needs and abilities.



Until recently there has been very little overlap between the Cognitive Psychology, Computer Graphics, AI and Graphics Design communities. The Smart Graphics Symposium intends to close these gaps. Recent advances in Computer Graphics have allowed AI researchers to integrate graphics in their systems (without being burdened by low-level issues such as image rendering) and graphics acceleration hardware has become affordable and is now available for a broad range of platforms. On the other hand, many AI techniques have matured to the point of being usable by non specialists. Furthermore, these very techniques are likely to be the vehicle by which both principles from Graphics Design and the results of research in cognitive aspects of visual representations, will be integrated in next generation graphical interfaces.

Symposium Scope

Smart Graphics is the interdisciplinary approach to the generation, presentation and interaction with 2D and 3D graphical interfaces in a manner that is sensitive to technological, computational and cognitive constraints. Such interfaces aim to move beyond the current requirement that designers anticipate every data, task and technological scenario, and instead allow the dynamic generation and presentation of content in such a manner that: (1) engages the user and is esthetically satisfying; (2) takes account of cognitive insights as to the use of external representations thereby minimizing potential for imprecision and ambiguity; (3) is sensitive to the real-time demands of the task in the context of the available computational resources; and (4) adapts the form of the output according to constraints placed on the presentation by the nature of the target media and available interaction devices. Smart Graphics research can be loosely divided into principles, methods and systems based research, and the symposium will encourage submissions in all these areas, based on the following characterization:

Principles: characterizing and coping with constraints on technological, computational and cognitive resources; theories of Graphics Design and visual esthetics, cognitive theories of graphical representations; conceptualizations of graphics; representation and reasoning requirements for Smart Graphics; interaction between resource restrictions; design, requirements capture and evaluation methodologies.

Methods: smart generation and presentation methods for both conventional desk-top and small pervasive devices; acquisition and representation of design knowledge for Smart Graphics generation; empirical methods in the characterization of cognitive restrictions; dealing with heterogeneous target media; application of planning, decision theory, optimization, constraint satisfaction, machine learning and other AI techniques to Smart Graphics; evaluation methods.

Systems: the application of Smart Graphics to visualization, virtual reality, augmented reality, mobile communications, wearable computing, graphical hypermedia, novel interaction techniques (e.g. haptic and natural language interaction), and advisory & tutoring systems.

Current and past researchers working within the scope of the Smart Graphics enterprise have had a forum in last year's Smart Graphics Symposium, where they could present the full breadth of their endeavors. This year's symposium will build on this success and both consolidate the results of existing research and raise awareness as to the many methods that are the dowry of AI when building smart graphical interfaces. Success of the Smart Graphics enterprise relies on the combination of insights from graphic design, human-computer interaction, cognitive science, graphics and artificial intelligence, and we have seen that already the first Smart Graphics Symposium has played a significant role in brokering a multidisciplinary dialogue between these communities.

Submission Format

We invite researchers and practioners from the fields of Computer graphics, Graphics Design, Cognitive Psychology, Artificial Intelligence and other related fields to submit papers in the following categories:

Full papers: These will be comprehensive descriptions of original research or design work within the scope of the symposium.

Short papers: These will rather present tentative or preliminary results of research or design work within the scope of the symposium and with more emphasis on the interdisciplinary evaluation of these ideas.

System demonstrations: These will be short descriptions of research or design work that the authors intend to show and discuss in a separate demo session at the symposium.

Statements of interest: These will be short statements describing why the author is planning to attend the symposium and what he or she expects to discuss or learn there.

Full and short papers will be considered for an additional system demonstration, where applicable. The exact submission format and page/word count limitations will be made available on the symposium web page. Submission will be in electronic form and presumably PDF, RTF and Postscript formats will be accepted.

Venue

The international Symposium on Smart Graphics will be held on June 11-13 2002, at the IBM T.J. Watson Research Center in Hawthorne, NY, USA. The Center is located 25 miles north of New York City and can be reached by train (Metro North, Harlem Line) and taxi within 1 hour from New York City, Grand Central Station. IBM's web pages provide detailed driving directions and a list of nearby accommodation.

Symposium Committees

Organizing Committee:

Andreas Butz <butz@eyeled.de> Eyeled GmbH (Germany)
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Program Committee:

Computer Graphics:
Steve Feiner (Columbia, USA)
Mike Gleicher (Wisconsin, USA)

Graphic Design:
W. Bradford Paley (Digital Image Design Inc., USA)

Cognitive Psychology:
Bernice Rogowitz (IBM T.J. Watson, USA)
Jiajie Zhang (University of Texas at Houston, USA)

Artificial Intelligence:
Elisabeth Andre (University of Augsburg, Germany)
James Lester (NCSU, USA)

Invited Speakers:

Ben Shneiderman (University of Maryland, USA)
Jock Mackinlay (Xerox PARC, USA)

Deadlines

February 18, 2002	Submission Deadline
March 18, 2002	Notification of Acceptance
April 1, 2002	Camera ready copy due
June 11-13, 2002	Smart Graphics Symposium

Symposium Web Page

http://www.smartgraphics.org/sg02/

2nd International Symposium on

Smart Graphics

June 11-13, 2002
Hawthorne, NY, USA

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