informatik-Kolloquium

Der Fachbereich Informatik der Johannes Kepler Universität Linz[1] lädt in Zusammen-arbeit mit der Österreichischen Gesellschaft für Informatik (ÖGI) zu folgendem Vortrag ein:

Bernd Bickel, IST Austria,

Computational Challenges in Designing Virtual Models for Fabrication

June 30th, 2015, 4:00 pm
Johannes Kepler Univ. Linz, Computer Science Building, room 057

Abstract: 3D printing is considered a disruptive technology with potentially tremendous socioeconomic impact. In recent years, additive manufacturing technologies have made significant progress in terms of both sophistication and price; they have advanced to a point where devices now feature high-resolution, full-color, and multi-material printing. Nonetheless, they remain of limited use, given the lack of efficient algorithms and intuitive tools that can be used to design and model 3D-printable content.

My vision is to unleash the full potential of 3D printing technology with the help of computational methods. In our research, we are working to invent and develop new computational techniques for intuitively designing virtual 3D models and bringing them to the real world. Given the digital nature of the process, three factors play a central role: computational models and efficient representations that facilitate intuitive design, accurate and fast simulation techniques, and easy-to-use authoring tools for physically realizable objects and materials.

In this talk, I will present several projects that demonstrate our recent efforts in working toward this goal, structured according to basic object properties, and the lessons learned from working over several years with various 3D printers.

Short Bio: Bernd Bickel joined IST Austria in early 2015 as Assistant Professor. He is a computer scientist interested in computer graphics and its overlap into animation, biomechanics, material science, and digital fabrication. His main objective is to push the boundaries of how digital content can be efficiently created, simulated, and reproduced.

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[1] Der Fachbereich (http://informatik.jku.at) besteht aus folgenden Instituten:
Anwendungsorientierte Wissensverarbeitung (FAW), Bioinformatik, Computational Perception, Computer-Architektur, Computergrafik, Formale Modelle und Verifikation, Informationsverarbeitung und Mikroprozessor-technik (FIM), Integrierte Schaltungen, Pervasive Computing, Systems Engineering and Automation, Systemsoftware, Telekooperation

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Bernd obtained his Master's degree in Computer Science from ETH Zurich in 2006. For his PhD studies, Bernd joined the group of Markus Gross who is a full professor of Computer Science at ETH Zurich and the director of Disney Research Zurich. From 2011-2012, Bernd was a visiting professor at TU Berlin, and in 2012 he became a research scientist and research group leader at Disney Research, where he investigates approaches for simulating, designing, and fabricating materials and 3D objects.

Bernd's work focuses on two closely related challenges: (1) developing novel modeling and simulation methods, and (2) investigating efficient representation and editing algorithms for materials and functional objects. Recent work includes: theoretical foundations and practical algorithms for measuring and modeling the deformation behavior of soft tissue; simulating and reproducing fundamental properties, such as elasticity, surface reflectance, and subsurface scattering; and computational design systems for efficiently creating functional artifacts such as deformable objects and mechanical systems.

Einladender: Prof. Dr Oliver Bimber, Institute of Computer Graphics

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