香港中文大學深圳研究院
Shenzhen Research Institute
The Chinese University of Hong Kong

香港中文大学深圳研究院

视觉分析与应用学术交流会暨论坛

邀 请 函

尊敬的嘉宾:
为促进科研学术的交流，实现相关领域专家学者共聚一堂探讨、分享科研学术成果，现诚邀您莅临参加由香港中文大学深圳研究院举办的“视觉分析与应用学术交流会暨论坛”。
本期交流会暨论坛主题为——“视觉分析与应用”，届时视觉分析与应用领域知名专家黄田津教授、梁志成教授、符志荣教授及刘雪婷博士将畅谈视觉分析与应用领域的核心技术，并探讨和展示不同领域中大数据分析与处理的相关讨论，包括数据采集、数据语义分析、数据学习、以及数据可视化等。探讨新科技未来发展走向，共同促进学术交流和技术合作。
免费参加，敬请预约 （报名预约请填写回执，并于 11 月 7 日前发邮件至 mwang@cuhkri.org.cn，如有疑问，请联系王老师 电话：13966752100）

Dear guests,

It’s our great honor to invite you to attend the Visual Analysis and Applications Workshop held on Wednesday, 12 November 2014 at 2:00 p.m. at CUHK Shenzhen Research Institute, NO.10, 2nd Yuexing Road, Nanshan District, Shenzhen. This workshop will provide inspiring talks from multiple fields that tackles hard problems in big data acquisition, semantic analysis, learning as well as the visual presentation.
Please return the registration form to mwang@cuhkri.org.cn by Nov.7, 2014. Should you have any questions, please feel free to contact Ms. Wong at 13966752100.

请填写以下回执内容：

报名回执 Registration Form				
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通信地址 Correspondence address：				
参会人员	姓名 Name	职务 Position	手机 Mobile	邮箱 Mail address

论坛介绍

【本期主题】	Visual Analysis and Applications
【时　　间】	2014 年 11 月 12 日（周三） 下午 14：00—18：00
【地　　点】	香港中文大学深圳研究院四楼 408 会议室 （深圳市南山区科技园南区粤兴二道 10 号）
【举办单位】	香港中文大学深圳研究院
【背景介绍】	The blooming of internet brings tremendous amount of data (text, image, video, and audio) to everyone. Human can no longer manually analyze such big data. Computational analysis is a must. However, visual data imposes lot of challenges in analysis. But it also embeds information that is hard to be represented solely by text. With the effective semantic analysis of the big data, we can extract important and useful patterns and semantics. All these extracted information can facilitate the subsequent applications. In this workshop, we bring inspiring talks from multiple fields that tackles hard problems in big data acquisition, semantic analysis, learning as well as the visual presentation.
【演讲嘉宾】	
Prof. Wong, Tien-Tsin 	Tien-Tsin Wong is known with his pioneer works in Computational Manga, Image-based Relighting, Ambient Occlusion (Dust Accumulation Simulation), Sphere Maps, and GPGPU for Evolutionary Computing. He graduated from the Chinese University of Hong Kong in 1992 with a B.Sc. degree in Computer Science. He obtained his M.Phil. and Ph.D. degrees in Computer Science from the same university in 1994 and 1998 respectively. He was with HKUST in 1998. In August 1999, he joined the Computer Science & Engineering Department of the Chinese University of Hong Kong. He is currently a Professor. He is also the director of Digital Visual Entertainment Laboratory at CUHK Shenzhen Research Institute (CUSZRI). He is an ACM Senior Member and a HKIE Fellow. He received the IEEE Transactions on Multimedia Prize Paper Award 2005 and the Young Researcher Award 2004. He was also qualified for National Thousand Talents Plan (國家千人计划) and Tianjin Thousand Talents Plan (天津市千人计划). For more, please visit http://www.cse.cuhk.edu.hk/~ttwong/

Prof. Leung, Chi-Sing 	Chi Sing Leung received the B.Sci. degree in electronics, the M.Phil. degree in information engineering, and the PhD. degree in computer science from the Chinese University of Hong Kong in 1989, 1991, and 1995, respectively. He is currently an Associate Professor in the Department of Electronic Engineering, City University of Hong Kong. His research interests include neural computing, data mining, and computer graphics. He has published over 160 articles/book chapters in the areas of Digital Signal Processing, Neural Networks, and Computer Graphics. In 2005, he received the 2005 IEEE Transactions on Multimedia Prize Paper Award for his paper titled "The Plenoptic Illumination Function" published in 2002. He was a member of Organizing Committee of ICONIP2006. He was the Program Chair of ICONIP2009 and ICONIP2012. He is/was the guest editors of several journals, including Neural Computing and Applications, Neurocomputing, and Neural Processing Letters. He is a governing board member of the Asian Pacific Neural Network Assembly (APNNA) and Vice President of APNNA.
Prof. Fu, Chi-Wing 	Chi-Wing FU, Philip, received his B.Sc. and M.Phil. degrees in Computer Science and Engineering from the Chinese University of Hong Kong, and his PhD degree in Computer Science from Indiana University in Bloomington. He joined School of Computer Engineering in the Nanyang Technological University in 2008. He received the IEEE Transactions on Multimedia Prize Paper Award in 2005. His research interests include computer graphics, user interaction, and visualization. He serves as associate editor of Computer Graphics Forum (CGF) from April 2013. He is also the reviewer of SIGGRAPH, SIGGRAPH ASIA, ACM CHI, Eurographics, IEEE TVCG, IEEE VR, IEEE CG&A, CGF, ICCV, etc. For more, please visit http://www.ntu.edu.sg/home/cwfu/.
Dr. Liu, Xueting 	Liu Xueting received her B.Eng. degree in Computer Science and Technology from Tsinghua University and PhD degree in Computer Science from the Chinese University of Hong Kong. She has won the Second Prize in the IEEE Hong Kong Section 2013 (PG) Student Paper Contest organized by IEEE (Hong Kong). She has published "Stereoscopizing Cel Animations" on ACM Transactions on Graphics (SIGGRAPH Asia 2013 issue) She is also the reviewer of Chinagraph, CVM, The Visual Computer, etc. Her research interests include computer graphics, computational manga and anime, and non-photorealistic rendering.

主题演讲	Visual Analytics for Big Transportation Data
主讲嘉宾	符志荣教授（Prof. Fu, Chi-Wing）
摘　　要	Massive amount of movement data, such as daily trips made by millions of passengers in a city, are becoming available nowadays. They are a highly valuable means not only for unveiling human mobility patterns, but also for assisting transportation planning in public transportation systems (PTSs). In this talk, I will present two pieces of recent visualization works on this topic. In the first work, we develop a novel technique to visualize and analyze interchange patterns in massive transportation data, aiming to revealing passenger redistribution patterns in a traffic network. In particular, we formulate a new visual model called the interchange circos diagram to present interchange patterns at a junction node in a bundled fashion, and optimize the color assignments to respect the connections within and between junction nodes. In the second work, which is a very recent one to be presented in IEEE Vis week 2014, we develop an integrated solution to visualize the traveling efficiency in a PTS. Here we develop the isotime flow map that linearizes the flow map visual representation into a parallel isoline representation, maximizing our visualization capability of mobility information along the time axis, while presenting clear and smooth pathways from the origin to destinations. Moreover, we also construct a PTS mobility model from millions of real passenger trajectories, and evaluate our visualization techniques with assorted case studies with transportation researchers.
主题演讲	Lagrange Programming Neural Network for Non-Differentiable Optimization Problems in Sparse Approximation
主讲嘉宾	梁志成教授（Prof. Leung, Chi-Sing）
摘　　要	Although the Lagrange programming neural network (LPNN) approach provides a general framework for solving nonlinear constrained optimization problems, the major limitation of the LPNN approach is that the objective function and the constraints should be twice differentiable. Since in compressive sensing and sparse approximation the objective functions or the constraints involve non-differentiable functions, the original LPNN approach is not suitable for recovering sparse signals. This talk presents a new formulation of the LPNN approach based on the concept of the local competition algorithm (LCA) and subdifferential. Unlike the classical LCA approach which is able to solve unconstrained optimization problems only, the proposed LPNN approach is able to solve the constrained optimization problems in compressive sensing and sparse approximation, which has the non-differentiable objective functions and non-differentiable constraints.

主题演讲	Computational Manga
主讲嘉宾	黄田津教授（Prof. Wong, Tien-Tsin）
摘　　要	Traditional manga (comic) creation are painstaking processes. Even computers are utilized during the production, they are mainly utilized as a naive digital canvas. With the increasing computing power and decreasing cost of CPU & GPU, more computing resource can be exploited cost-effectively for intelligent and semi-automatic creation of aesthetics content. In this talk, we present our recent works on computational manga and anime (all published in ACM SIGGRAPH), in which we aim at facilitating various production steps with the advanced computer technologies. Manga artists usually draw the backgrounds based on real photographs. Such background preparation is tedious and time-consuming. Some artists already make use of simple computer techniques, such as halftoning, to convert a given color photograph into B/W manga. However, the resultant mangas are so inconsistent in style and monotonous in pattern due to the single halftone screen. I will present a way to turn a color photograph into manga while preserving the color distinguishability in the original photo, just like what traditional manga artists do. On the other hand, there is a trend of migrating manga publishing from the traditional paper medium to the digital domain via the screen of portable devices. There are companies doing colorization for B/W mangas (of course, in a painstaking manual fashion) to allow users to read color manga on the portable devices. I will present a computer-assisted method to colorize an originally B/W manga into a color version by simply scribbling on the B/W version.
主题演讲	Semantic Analysis for Manga and Anime Applications
主讲嘉宾	刘雪婷博士（Dr. Liu, Xueting）
摘　　要	Nowadays, digitizing traditional manga and anime (comics and cartoons in Japanese) becomes a rising trend in the industry. With the power of electronic devices, manga and anime can be presented with visually enriched contents. For example, black-and-white static manga can be colorized and animated. With the booming of 3D technology and devices, manga and anime can even be presented in stereo. However, introducing these special effects requires a huge amount of manual efforts, and therefore is quite labor-intensive and time-consuming. It would bring many benefits to the industry if the computers can help automate the processes. But the major challenge here is that computers cannot perceive and understand high-level semantics of the contents as humans do. In this talk, I will present two semantic analysis methods for understanding manga and anime. In the first work, we present a learning-based method for extracting text balloons with precise boundaries from manga images. An integrated property set is proposed for classifying text balloons from other similar regions. A novel boundary refinement process is followed for extracting text balloons with precise boundaries. The applications include motion manga production and text recognition. In the second work, we develop an automatic system for synthesizing convincing stereoscopic cel animations from ordinary 2D hand-drawn inputs. We first infer the ordering of the regions by utilizing the T-

	junction cue. Then we synthesize spatiotemporal smooth depth for each frame based on both region ordering and neighboring relationships. The system fits naturally into the existing production flow of 2D cel animations.

论坛流程：

Visual Analysis and Applications 学术论坛	
14:00 —— 14:30	来宾签到
14:30 —— 14:35	主持人致辞、宣布论坛议程
14:35 —— 15:20	主题演讲：Visual Analytics for Big Transportation Data 主讲嘉宾：符志荣教授（Prof. Chi-Wing Fu）
15:25 —— 16:10	主题演讲：Lagrange Programming Neural Network for Non-Differentiable Optimization Problems in Sparse Approximation 主讲嘉宾：梁志成教授（Prof. Chi-Sing Leung）
16:10 —— 16:30	茶歇
16:35 —— 17:05	主题演讲：Computational Manga 主讲嘉宾：黄田津教授（Prof. Tien-Tsin Wong）
17:05 —— 17:35	主题演讲：Semantic Analysis for Manga and Anime Applications 主讲嘉宾：刘雪婷博士（Dr. Liu Xueting）
17:35—— 18:00	现场问答、互动讨论，参会嘉宾合影

【交通指南】

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