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IEEE Cleveland Contact

Publication of the Cleveland Section of the Institute of Electrical and Electronics Engineers.

Electrical Engineering and Computer Science Seminar

At CWRU Thursday, February 7, 11:30-12:30

"Querying Image Databases - DISIMA Approach"

By M. Tamer Ozsu

Querying image databases is more involved than traditional relational databases. The query primitives are not as well defined, and there is natural fuzziness in queries. Furthermore, the types of queries are more involved and include searching image features (e.g., color and shape), image content as represented by the objects in each image, and metadata. In this talk, we describe some of the new approaches to image querying that we have implemented within the context of the DISIMA Image DBMS. DISIMA is an operational system that is developed with the objective of studying advanced modeling and querying issues in image databases. The system enables queries on color feature at different granularities, resulting in more accurate searches. It also includes techniques to support queries over spatial relationships of objects in images. The talk will cover the techniques to support these types of queries, as well as the query language and visual query interface that has been implemented.

M. Tamer Ozsu is a Professor of Computer Science and Faculty Research Fellow at the University of Waterloo (Waterloo, Canada). He joined the department in June, 2000, after spending 16 years at the Department of Computing Science at the University of Alberta. He has been a visiting scientist and visiting professor at GTE Laboratories, INRIA Rocquencourt, GMD-IPSI, and University of Milano.

Prof. Ozsu has authored, coauthored and edited seven books. He is the Coordinating Editor-in-Chief of the VLDB Journal, and serves on the editorial boards of Distributed and Parallel Databases Journal, Information Technology and Management, Internet and Web Information Systems, and ACM Digital Review.

He is the current Chair of ACM Special Interest Group on Management of Data (SIGMOD), a trustee of the VLDB Endowment, and a founding trustee of the International Federation of Cooperative Information Systems. He has served on many conference committees in various capacities including Program Chair/Co-Chair of RIDE (1995), CIKM (1996), MIS (1998), WISE (2001), IDEAS (2002), Industrial Program Co-Chair of ICDE (2001) and General Program Chair of VLDB (2004).

He chaired the Computer and Information Science Grant Selection Committee of the Natural Sciences and Engineering Research Council of Canada during 1993-94, and served as a member of the same Committee from 1991 to 1993. He served on the Management Committee of the Canadian Genome Analysis and Technology Program during 1992-93. He held the University of Alberta McCalla Research Professorship for 1993-94, and was Acting Chair of the Department of Computing Science during 1994-95.

The seminar will take place in the White Building, Room 411. Following the presentation, refreshments will be served.

Cleveland Biomedical Imaging Group (CBIG) Announces 2002 Secretarial Election

Nominations are now closed, and we are conducting an electronic ballot for the 2002 secretary of CBIG. We will collect ballots until the February 13th meeting. The winner will be announced at that meeting.

All Cleveland area IEEE members (student, full or otherwise) are eligible and encouraged to vote. Please select from the following two candidates:

Kimberly A. Powell, Ph.D., assistant staff member of the Department of Biomedical Engineering, Cleveland Clinic Foundation. For more information, see: http://www.lerner.ccf.org/pi/powell.html.

Andrew Rollins, Ph.D., Assistant Professor of the Division of Gastroenterology, Department of Medicine, Case Western Reserve University.
See: www.opticsexpress.org/oearchive/ source/5873.htm cancer.cwru.edu/research/res_prog_imaging_3.html# members.

Please send your vote to cbig@ieee.org.
CBIG 2002 Officers include David Dean, President; Zhenghong Lee, Vice President; Joseph Collura, Treasurer; and Kyle Salem, Acting* Student Representative.

***Those interested in serving should contact Kyle: kas23@po.cwru.edu.**

IEEE Cleveland Section CHAIRMAN'S COLUMN

by Ray Heintel

Welcome back to the Cleveland Section of the IEEE. I would like to personally thank several people for their contributions. First, I wish to thank the officers, both elected and appointed from last year. Secondly, I want to thank those individuals who have stuck with us through some rough times in 2001, and have been instrumental in holding the Cleveland Section together. Lastly, I want to thank, in advance, all of you who will help us this year as we work to get the Cleveland Section not only back on track, but help us mold the Cleveland Section into an organization which is truly useful to our members.

As we work hard to put the events of last year behind us, we need to remember those who gave their lives to save many. Likewise, I feel that we all need to put out that little bit of extra effort to make this world we live in a better place.

With that said, I am not sure where this year will take us, I only hope that as we rebuild, at the year's end, we can all look back and be pleased and proud of our accomplishments. The Cleveland Section has almost 2000 members, most of which we never hear from, nor do we ever seem to help them. I invite you all to come and participate with us in this year of reshaping the Cleveland Section. If there are needs which we can fill, please come and help us plan and implement methods to fill those needs.

Many of our fellow IEEE members understand the great value in the benefits National provides. I hope we can get to the point where they see the value the local organization provides. Please come out this year and help us. If you can't actually attend a meeting, please send your ideas and suggestions to one of the officers. If you have the inclination, please volunteer to serve the Cleveland Section as an appointed officer.

Anticipated CBIG 2002 Meeting Schedule

CBIG intends to directly sponsor six meetings in 2002, and will likely support many others by announcement through this list. At this time, attendance is not limited to IEEE members. The following is a preliminary schedule:
February: Raymond Muzic, Ph.D., "Gentle Introduction to PET"
April: tba on confirmation, "Image Guided Surgery"
June: tba, invited distinguished lecturer
August: Zhenghong Lee, "PET Imaging of Gene Expression"
October: Student Tour of Philips Medical Imaging
November: tba on confirmation, "Clinical PET Applications"

The first of the CBIG-supported talks this year was: "Studying the Living Cell with Light Scattering and Low-Coherence Interferometry" by Dr. Adam P. Wax, G.R. Harrison Spectroscopy Laboratory, MIT. It was held Tuesday, January 22, 2002.

The lecture covered the study of intact, living cells with optical spectroscopy offering the opportunity to observe cellular structure, organization and dynamics in a way that is not possible with traditional methods. We have developed a set of novel spectroscopic techniques for measuring spatial, temporal and refractive structure on sub-hertz and sub-wavelength scales based on using low-coherence interferometry (LCI) to detect scattered light. We have applied these techniques in different types of cell biology experiments.

In one experiment, LCI measurements of the angular pattern of backscattered light are used to determine non-invasively the structure of sub-cellular organelles in cell monolayers, and the components of epithelial tissue from freshly excised rat esophagus. This work produced the remarkable result that the organization of sub-cellular structure exhibits fractal behavior. In another experiment, LCI phase measurements are used to examine volume changes of epithelial cells in a monolayer in response to environmental osmolarity changes. Although cell volume changes have been measured previously, this work demonstrates for the first time the volume of just a few cells (2 or 3) tracked continuously and in situ.

The host/sponsor was Dr. Igor Efimov, Biomedical Engineering, Case Western Reserve University, e-mail: ire@po.cwru.edu, telephone: 216-368-1916.

Please send announcements of talks of interest to the Cleveland biomedical imaging community to cbig@ieee.org or contact one of the officers listed at www.ieee.org/cbig.

CBIG's New Mailing List

Welcome to the Cleveland Biomedical Imaging Group's Listserve. It is a moderated list with the sole purpose of providing announcements of local area talks, meetings, and activities of interest to CBIG members. If you have been automatically subscribed, it is because ex-officio President Ray Muzic has provided your e-mail address. Subscribers' e-mail addresses are confidential and are not distributed. For information on how to subscribe and unsubscribe see: https://cnswww.cns.cwru.edu/net/easy/postoffice/maillist/use-maillist.html

Since CBIG's founding in 2001, there has been interest in posting locally available industry and faculty positions, as well as student co-op opportunities, summer research projects, and graduate student assistantships. These are already handled on the CBIG webpage: www.ieee.org/cbig. Please send your ideas about other facilities or information you would like to see on the webpage to cbig@ieee.org.

CBIG is a local IEEE chapter affiliated with the IEEE Engineering in Medicine and Biology, Computer, Signal Processing, and Nuclear and Plasma Sciences Societies. Please send comments, suggestions, or requests for assistance to cbig@ieee.org or see www.ieee.org/cbig for more information.

Goods' Classes Aren't Always Good Classes

By Michael Garvey

Perhaps you have wondered how different products with the same names ("trademarks") can coexist. We have ROYAL pudding, ROYAL vacuum cleaners, ROYAL plumbing fixtures, even ROYAL yo-yos.

The test for trademark infringement is whether a newer mark is "likely to be confused" with the older mark. A similar test is used to determine whether a mark can be registered despite the existence of a prior registration. Thus, the Trademark Office is not supposed to register two confusingly similar marks.

A number of factors are considered to determine whether a mark is infringing or can be registered. The factors vary from one jurisdiction to another. Generally, though, the two prevailing factors are similarity of the marks and similarity of the goods (or services) on which the mark is used.

The Trademark Office uses a classification system to assist in its determination of whether goods are similar. There are 34 classes of goods and 11 classes of services. The system is an international system used by most trademark offices around the world. It is administered by the World Intellectual Property Organization (WIPO) in Geneva, Switzerland.

The International Classification system has been fairly useful, but, as with any such system, there are problems. For example, pipes used for plumbing are listed in different classes according to whether they are made of metal or plastic. A plumber finding TUBECO metal pipes at the plumbing supply would probably expect them to come from the same company as TUBECO plastic pipes. Yet, a trademark examiner or other person using the classification system might consider them to be different.

As culture and technology have changed, some classes have become overcrowded, while others have been underused. All scientific instruments, electronic devices, data storage media (tapes, CDs, DVDs, etc.), and software are lumped together in a single class. On the other hand, there is an entire class devoted to yarns and threads for textile use.

But WIPO and the member countries monitor use of the system and can modify it as necessary. In fact, at the beginning of 2002, one class of services that included "miscellaneous services," was divided into four classes of services.

Another problem is that the U.S. Trademark Office application fees are based on the number of classes of goods in the application. Thus, a company that files an application for both metal and plastic pipes will pay for two classes, whereas a company that files an application for dozens of different electronic products will pay for only one class.

In addition, many foreign countries permit registration of a mark for all of the goods listed in a class, without specifying the particular goods. Thus, a registration owned by a company selling music CDs could prevent registration of the same mark by a company selling electronic scales for laboratories. The U.S. Trademark Office, however, is possibly the strictest in the world, requiring a detailed listing of the products sold.

Ultimately, the trademark classification system is supposed to be merely a guide, not the determinative factor in deciding whether goods are similar. Despite its problems, it provides a useful starting point for analyzing whether trademarks are conflicting.

Michael Garvey is a patent attorney with Pearne & Gordon LLP.

Cleveland Biomedical Imaging Group to Meet February 13

The first 2002 meeting of the CBIG will meet February 13, 2002, in the Biomedical Research Building, Frohring Auditorium (BRB 105), Case Western Reserve University. For map see: www.cwru.edu/cgi-bin/campusmap

From 5:15-6:00 p.m., there will be dinner/discussion. At 6:00, we will have announcements, followed at 6:10 p.m., by a presentation by R. Muzic. The evening will conclude with questions from 6:50-7:00 p.m. The event is free to students and $7.00 for faculty/industry.

The evening's presentation, "A Gentle Introduction to PET Imaging" by Raymond Muzic, Ph.D., Division of Nuclear Medicine from the Department of Radiology at University Hospitals of Cleveland, Case Western Reserve University, promises to be fascinating.

PET is a Nuclear Medicine imaging modality. Radioactivity is administered to the patient, who is then scanned to obtain pictures of the biodistribution of the radioactivity. What is depicted in the images depends on the properties of the radioactive pharmaceutical. For example, injected IV radioactive water diffuses from the vascular space into the tissue, yielding a picture related to perfusion. Thus, unlike CT and MRI, images depict physiological or biochemical processes rather than anatomy.

In this lecture, Mr. Muzic will introduce the following basic principles of PET: physics of image formation, common radiopharmaceuticals used for imaging and what they show, and how mathematical models are applied to quantify physiologic function. In a lecture later this year, Zhenghong Lee will discuss how and why PET is used to image gene expression.

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