

INSIDE CS

Department of Computer Science



FALL 2006



NOTES FROM THE CHAIR

BY

PROF. LARRY DAVIS

After several years of steady enrollment declines, the Department saw a marked rise in enrollment this year, with over 100 freshman in the class of 2010. This enrollment increase is due in large part to the recruiting efforts of our Associate Chair for Undergraduate Education, Jim Purtilo, and his staff, as well as to our summer Java Passport Program that Nelson Padua-Perez runs. This program has attracted hundreds of high school students to the campus to learn about computer science and get excited about educational and career opportunities in our field.

Last year was a relatively calm year for faculty recruiting, with only one new faculty member hired for our computational biology program. We're very pleased to have recruited Assistant Professor Mihai Pop, who joined the faculty in July. The next article in this newsletter describes Mihai's background and research interests.

Hot on the heels of filling the Horvitz Professorship, the Department has had two other Professorships established. The first is the Jack and Rita G. Minker Professorship. Jack, as many of you know, was the first chair of the Department, and the recent recipient of the prestigious Alan Newell Award from the ACM. The professorship honors the pioneering contributions of Rita Minker to the early development of computer science, and Jack Minker for his research in AI and his work

in support of human rights for scientists. It is an appropriate acknowledgement of two early leaders in the Computer Science discipline. The second professorship is being primarily funded by Mr. Christopher Darnell and Grantham, Mayo, Van Otterloo & Co. LLC through a matching gift contribution. The professorship will be named The Darnell/Kanal Professorship in Computer Science in honor of Emeritus Professor Laveen Kanal. This generous gift is in gratitude for the warm reception and intellectual support afforded by Prof. Kanal more than twenty years ago which served as the foundation for Mr. Darnell's career in financial management. Laveen was one of the founders of the field of Pattern Recognition. Articles describing both of these professorships are included in the newsletter.

To help bring our readers up to date on current research programs in the Department, we have been including articles describing the activities of individual research groups. This newsletter contains a discussion of research activities in our Computer Vision Group.

As this newsletter goes to press, Profs. V. S. Subrahmanian and Ashok Agrawala are preparing to leave for India with President Dan Mote. They'll be meeting with administrators at leading Indian educational institutions and political leaders for initial discussions on joint educational and research programs between Maryland and Indian counterparts. We're beginning another international outreach activity this January with the campus's Institute for Global Chinese Affairs. We will be bringing professors from Sichuan University here for six months to work with our faculty on curriculum development and research topics. There will be a new group of professors every six months for several years.

The newsletter contains several other interesting articles, including one about Prof. Ben Bederson's trip to Mongolia to open a "branch" of the international children's digital library.

As always, we hope that you enjoy the newsletter and welcome your comments.

CS WELCOMES MIHAI POP



Assistant Professor Mihai Pop began his appointment in Computer Science July 2006. Mihai received a B.S. in Computer Science (1994) from Politehnica University in Bucharest, Romania and a Ph.D. in Computer Science (2000) from Johns Hopkins University.

Between 2000 and 2005 Mihai was a Bioinformatics Scientist at The Institute for Genomic Research, where he developed genome analysis software such as the publicly available packages Bambus - a hierarchical scaffolding tool, and AMOS - a modular framework for developing genome assemblers. In addition, Mihai was involved in many genome projects, including an analysis of the bacterium used in the anthrax attacks during the fall of 2001, an early analysis of the dog genome, and the sequencing of the microbial communities that inhabit the human gut. Mihai joined the University of Maryland in 2005 as an Assistant Research Scientist at the Center for Bioinformatics and Computational Biology located in UMIACS.

During his free time Mihai enjoys sailing, woodworking, and spending time with his wife Marina and six-month old son, Sebastian. We are delighted to have him as a member of our department.

No HOTEL, TENT:

THE INTERNATIONAL CHILDREN'S LIBRARY GOES TO MONGOLIA

BY

BEN BEDERSEN



I am sitting in a room with 35 people. We are launching the Mongolia READ project – Rural Education and Development, funded by a grant from the World Bank. The room is in a camp of 10 “gers” (similar to “yurts” found in other countries) an hour drive from Ulaan Baatar, the capital of Mongolia.

The International Children’s Digital Library (ICDL – www.childrenslibrary.org) is in Mongolia and it got here in Charlie’s suitcase. I was supposed to take it in mine, but I got nervous. I was afraid that between U.S. export control laws and customs officers in Beijing (where we traveled through), the server on which we had installed ICDL would be confiscated. So I asked Charlie Abelmann, the World Bank designer of the project to take it with him since he has some credentials that could be helpful, and he is much more experienced traveling in this part of the world.

This unlikely collaboration between an academic computer scientist and this international development project actually makes complete sense. I am one of three leaders of the ICDL project, along with Profs. Allison Druin and Ann Weeks also at the University of Maryland. We have been building the ICDL for 4 years with as many years before that of work leading up to this project. The ICDL is a website of full scans of excellent children’s books in over 40 languages with a child friendly interface for searching and reading online. It is now being spun out into the independent ICDL Foundation to support further growth. Independently, the World Bank has been designing a project to support literacy and education in rural Mongolia, concentrating on building libraries of excellent children’s books throughout the country. They also decided to include a digital component with the goal of exploring how interesting and educational material can be put on computers to motivate children and to push forward technological literacy and capability. We got together, and now the ICDL is serving that digital component’s need.

Deployment of the ICDL in Mongolia is complicated. Not only is Mongolia’s internet connection to the rest of the world slow, but there are limited connections at best throughout rural Mongolia. The idea is to start by setting up a primary server in the capital, Ulaan Baatar (which I hope to accomplish this trip). Then we will set up “satellite” servers in rural schools which get updated from

the primary server through intermittent internet connectivity or manual updates with disks, airplanes, and IT staff.

Back to the ger. Despite going to sleep well after midnight, I woke up at 5:30am. I restarted the fire to warm up the now freezing ger. Charlie was awake too, and so we went for a walk up the foothills surrounding the camp. With my first real view of Mongolia, I saw the remote beauty I had heard of. The pure and raw magnificence of the land defines awe. Gentle sloping hillsides covered with sparse grass and wildflowers headed up to the rugged mountainside. Horses, cows, and the occasional camel grazed in the distance as the sun came up over a ridge which all at once lit the land and warmed our faces. We walked for an hour as high as we could go until the ger camp was just white dots in the valley. At 2,000 meters without much sleep, my heart was pounding and my senses alive.

Breakfast was “tsai”, cream of wheat, and a sandwich of liverwurst and coleslaw. The tsai was a tea I had never tasted – made with milk and salt, but no sugar. Revitalized, I was ready for a day of meetings in Mongolian with eagerness to learn more details about the broader project.

I gave my talk about ICDL in the afternoon, including a demo of the Mongolian version (running off my laptop). The disruption of translation made it hard to stay in the flow, but it seemed to go well. The digital library is a very small part of the larger project which focuses on improving rural literacy with a 3-pronged approach:

- Select and deliver 4 copies each of 40 books to each of grades 1-5 in all 385 rural schools. These schools have essentially no children’s picture books that aren’t traditional textbooks.
- Train teachers in creatively and effectively using the books to teach with as a condition of receiving them.
- Design and implement a country-wide standardized test of students to track educational achievement.

Returning to Ulaan Baatar a few days later represented the transition from the excitement of a new project to the reality of working with fragile technology in a difficult situation. I started up the server I brought with me to find to my horror and quickly growing panic that it wouldn’t boot, and the disks were apparently badly damaged in transit. This led to a late-night session with a friend of Saruul, the ever-friendly self-taught bank IT person in heels. Her friend conveniently worked at a major ISP. He had a matching Dell PowerEdge server, and so with a fair amount of trouble, we found that while the machine wouldn’t boot, the data seemed to be ok, and we were able to back up the disk. With no dinner and growing concern, I went to bed around midnight this time sleeping all the way to 5:30am with a long day ahead of me.

What does it take to fix a server that won’t boot while traveling in Mongolia? About 24 hours of focused attention, a friendly local IT person with knowledgeable friends willing to help, a good web connection, advice from your IT staff back home, a three hour call to the U.S. to Anne Rose who set up the machine, and a pinch of good luck. Fortunately, that’s exactly what I had – and at 1:00, the Mongolian ICDL server was good to go.

It was a pretty painful process, but in the end, with heroic long-distance help from Anne Rose back in Maryland on the phone – while she would try commands on our staging server before I

executed them (reminiscent of Apollo 13) – we got everything enabled, and auto-starting on boot. This last step was crucial; while the IT staff in Mongolia can keep the hardware running and the operating system patched, we can't rely on them to know anything about our software and where to nudge it when it falls over. Finally it was over, and I collapsed with a big smile on my face – happy as a clam when I found myself sleeping all the way until 7:00 am. I got the server installed, and if you don't believe me, try it yourself at www.read.mn (that is, if you can read Mongolian).



Hand-painted mural in rural Mongolian elementary school.



Traditional Mongolian "Ger" used by nomads - constructed in 45 minutes.

The full version of this abridged tale is available at www.cs.umd.edu/~bederson

ACM DISSERTATION NOMINATIONS

The department has nominated two of its recent Ph.D. graduates, Srinivasan Parthasarathy and Ugur Kuter, for the ACM Dissertation Award. Although it will be December before we learn who has been selected by the ACM, we wanted to acknowledge their stellar work and that of their advisors, Profs. Aravind Srinivasan and Dana Nau. The department's selection committee commented on the strength of both dissertations noting that, "difficult problems were tackled and their results were quite impressive."

Parthasarathy's dissertation, "Resource Allocation in Networked and Distributed Environments," studies a central challenge in networked and distributed systems: resource management. That is, how can we partition the available resources in the system across competing users, such that individual users are satisfied and certain systems-wide objectives are optimized? The pivotal theme of the thesis is the innovative use of linear programming and probabilistic techniques for resource allocation, and the novel ways of connecting them with application-specific ideas. The areas of application include capacity-estimation and media access in wireless networks, scheduling broadcasts and multiple jobs on machines, and sweep-scheduling problems that arise in radiation transport.

Kuter's dissertation, *Planning Under Uncertainty: Moving Forward*, describes some new algorithms to generate plans of action in situations where the actions have nondeterministic or probabilistic outcomes. Under the right conditions, his new algorithms can run exponentially faster than the previous algorithms for such problems. In one set of experiments, his new algorithms were 10,000 times faster than the best previous algorithms. In another set of experiments, his new algorithms took only about 1/3 second to solve problems more than 14,000 times larger than the best previous algorithms could solve.

The department is proud of their work and wishes them every success in their careers.

THE DARNELL/KANAL PROFESSORSHIP IN COMPUTER SCIENCE

Mr. Christopher Darnell, although not an alumnus of the department, has generously made possible the establishment of the Darnell/Kanal Professorship in Computer Science. He is a member of the financial group Grantham, Mayo, Van Otterloo & Co. LLC's Board of Directors located in Boston, Massachusetts. Initially, Mr. Darnell has pledged a donation to be given over three years (2006 – 2008) which will be matched by his company. When asked to provide us with his fond remembrances of Prof. Kanal, he sent us the following statement.

"I first met Laveen Kanal in 1981 when I was beginning my career in quantitative investment management. I had been discouraged with the failure of traditional statistical methods to analyze financial market data characterized by a low signal-to-noise ratio. After reading some of the early papers by Professor Kanal in the new field of statistical pattern recognition, I called Laveen--out of the blue--to see if he would be willing to talk to me. He said he would be delighted to talk and invited me down to Maryland.

In person Laveen was charming, enthusiastic, and patient, and he gave me some great suggestions for using new analysis methods to analyze financial data. After studying the literature in his new

field, I returned to Maryland to explore with Laveen the public source statistical pattern recognition package, ISPAHAN, which allowed me to begin a real program of empirical research. Laveen was not only a pioneering thinker and researcher but also a great motivator. While up the road at Princeton Burton Malkiel was publishing the influential *Random Walk Down Wall Street*, Laveen was convincing me that new methods in mathematics and computer science would someday prove the “efficient market” hypothesis incorrect.

Laveen was right. With his encouragement, I became part of a new generation of investment professionals that used quantitative methods to prove the academics wrong. Over the next 20 years I was the chief architect of many successful global investment products at the investment firm GMO in Boston. Today I am on the Board of Directors of GMO, which now manages \$130 Billion for sophisticated clients around the world. I also manage GMO’s hedge fund group that uses advanced methods in mathematics and computer science to trade global securities. Our hedge fund group still uses one of the original statistical pattern recognition algorithms from ISPAHAN, the non-linear Sammon map, to visualize the adaptive behavior of one of our key forecasting models. While funding a new professorship at Maryland may be unusual for a non-alum, I think it is even more remarkable that Professor Kanal genuinely welcomed and donated time to me, a complete stranger with no connection to the University. Even though Maryland is now one of the world’s leading research institutions, I hope that the next generation of Laveen Kanals will follow his example of intellectual openness and mentoring. Although it took 25 years for me to repay Maryland’s computer science department, I am deeply satisfied to be able to support and thank the department and the university, and to recognize and repay my debt to an outstanding individual.”

Currently, Laveen Kanal holds the title of Professor Emeritus. Laveen joined the department in July 1970 as a world renowned computer scientist in pattern recognition. He remained as a full-time faculty member until his retirement in December 1995. During these years, he was the recipient of many prestigious international and national research awards and was a mentor to both undergraduate and graduate students. Prof. Kanal is an IEEE, AAAS, and AAAI Fellow and received the King-Sun Fu Award from the International Association for Pattern Recognition in 1992. This is the highest award given by that Association. Since that time Laveen has continued his involvement in the scientific community. He is a frequent visitor to the department providing faculty and staff with cheery greetings and giving freely of his advice and counsel.

Should you wish to make a donation to this endowment, your check or pledge, which may be spread over several years, will be greatly appreciated. Checks should be made payable to The University of Maryland College Park Foundation, Inc. at the following address:

University of Maryland
CMPS Dean’s Office
Attn: Mr. Larry Liff
A.V. Williams Building
College Park, Maryland 20742

Should you have questions, you may contact Mr. Liff via email:

liff@umd.edu or by phone: 301-405-1082.

THE JACK AND RITA G. MINKER PROFESSORSHIP IN COMPUTER SCIENCE

The Computer Science Department, in conjunction with the Institute for Advanced Computer Studies (UMIACS), is pleased to announce the creation of the Jack and Rita G. Minker endowed Professorship in Computer Science. The professorship honors Rita Minker’s pioneering contributions to the early development of computer science, and Jack Minker for his research in AI and his work in support of human rights for scientists.

Rita G. Minker received a B.S. with high honors in Mathematics from the New Jersey College of Women (now Douglass College) in 1948, and an M.A. in Mathematics from the University of Wisconsin in 1950. While she was a graduate student, Rita met her husband, Jack Minker, and they were married in 1951.

Rita’s first position was at Bell Laboratories, where she programmed network problems for one of the first digital computers, the Bell Relay Machine. She then went to Cornell Aeronautical Laboratories, and worked on simulating the performance of missile systems using electronic analog computers. In 1952, Rita became the first woman programmer and second computer programmer hired at RCA, working on BIZMAC, RCA’s first computer.

Rita left the computer profession from 1953 to 1964 to raise her children, Michael and Sally. She returned to work as a mathematician and computer programmer in the newly formed Division of Computer Research and Technology (DCRT) at the National Institutes of Health (NIH) in Bethesda, Maryland. Rita was one of the members of this division, formed to serve the computer needs of medical researchers at NIH. She headed the Training Unit in DCRT from 1968-1975, where she instituted courses to teach medical researchers statistical methods and programming. In 1975 Rita joined the Statistical Software Section, Laboratory of Statistical and Mathematical Methodology of the DCRT where she was in charge of consulting on and maintaining SPSS, a major statistical package. She coauthored several medical journal articles on shistosomycin and coauthored a paper with Jack on the history of the optimization of Boolean expressions.

Rita died of breast cancer at the age of 61 on October 11, 1988.

Jack Minker, Professor Emeritus at the University of Maryland came to Maryland in 1967. Jack is a leading authority in the area of artificial intelligence (AI), deductive databases, logic programming and non-monotonic reasoning. He is considered the founder of the area of disjunctive deductive databases, which focuses on how to use semantics of data to optimize search and provide cooperative answers in response to queries. Together with his students he wrote the field’s first monograph, *Foundations of Disjunctive*

Logic Programming. Jack was awarded the prestigious 2005 Allen Newell Award, presented to an individual selected for career contributions that have breadth within computer science or that bridge computer science and other disciplines. The award cites Minker for:

“Fundamental contributions to the fields of deductive databases, logic programming, artificial intelligence, and, more generally logic-based methods in Computer Science and for his truly unprecedented role in organizing and stimulating scientific discourse.”

As a teacher, Jack was awarded the University of Maryland Scholar/Teacher Award for 1997-1998. He has been a mentor to numerous students and faculty at Maryland. Jack was elected a member of Maryland’s Academy for Excellence Teaching and Learning in 2002.

In service to the scientific community, Jack was Chair of the Advisory Committee to the National Science Foundation’s Computer Science Section, 1980-1982. His committee influenced NSF to make Computer Science a Division within NSF, separate from the Mathematics Division. Jack was the Founding Editor-in-Chief of the journal *Theory and Practice of Logic Programming*. He received the University of Maryland Presidential Medal in 1996 - this award recognizes a member of the College Park community who has made extraordinary contributions to the social, intellectual, and cultural life of the campus, and is the highest honor at the University of Maryland.

Jack is considered the person who most vigorously and effectively promoted the cause of computer scientists whose human rights had been violated. Because of his efforts, he received the Association for Computing Machinery Outstanding Contribution Award for work on Human Rights in 1985.

The department is very pleased to have this endowed professorship and we feel it is an appropriate acknowledgement of two early leaders in the Computer Science discipline. Should you wish to make a donation, you may send us your check or you may spread the contribution out over several years. Your donation will contribute to our goal of raising the additional \$150K needed to fully fund the Professorship. Checks should be made payable to The University of Maryland College Park Foundation, Inc. at the following address:

University of Maryland
CMPS Dean’s Office
Attn: Mr. Larry Liff
A.V. Williams Building
College Park, Maryland 20742

Should you have questions, you may contact Mr. Liff via email: liff@umd.edu or by phone: 301-405-1082.

CS TAKES A LOOK AT COMPUTER VISION

Computer Vision at the University of Maryland has a history of more than 40 years. The Computer Vision Laboratory was established by Prof. Azriel Rosenfeld in the 1960’s. He is widely regarded as the father of the field, having written the first textbook on the subject, established the first scientific journal (*Computer Graphics and Image Processing*), and founded the first international conference (*International Conference on Computer Vision*). He published over 500 journal and conference papers on almost all aspects of computer vision and image processing.

The Laboratory has had a number of computer science alumni go on to great success around the world. For example, Narendra Ahuja at the University of Illinois is a Chaired Professor and a recipient of the prestigious IEEE Peori Prize; Chuck Dyer is a professor and former Chair of the top ten computer science department at the University of Wisconsin and Shmuel Peleg is a Professor and former Chair of Israel’s best computer science program at Hebrew University. They are all highlighted on the Department’s web-based alumni hall of fame. Over 100 computer science students have received their Ph.D.’s in computer vision since the Laboratory was established.

The Laboratory is currently directed by Prof. Yiannis Aloimonos. Yiannis began his career studying problems in video analysis, especially the problems of estimating the movement of a camera through space (think of a camera mounted on a robot vehicle) along with three dimensional models of the world through which the camera is moving (the so-called structure from motion problem). More recently, he has been studying models of human motor control and movement recognition that could be used by computer vision systems to model and recognize the movements that people make during everyday activities. Yiannis and his students have contributed to many other areas of computer vision, including stereo (example below), camera design, camera calibration, and perceptual organization.



There are several other faculty involved in computer vision, including Profs. Larry Davis, David Jacobs, Ramani Duraiswami, Hanan Samet and Rama Chellappa. Larry Davis, current Chair of the Computer Science Department, was a student of Prof. Rosenfeld’s in the 1970’s. He has been on the faculty at Maryland since 1981. Early in his career he and his students studied problems related to object recognition based on shape as well as visual navigation systems for robot vehicles (especially automatic road following and more recently collision avoidance). For the past 15 years he has focused on visual surveillance systems. Here, the core computer vision problems involve methods to detect and track the motion of people and vehicles through collections of

video cameras, logic-based methods for representing and recognizing activities involving people, vehicles and the objects they transport for detection of security and safety violations, and intelligent control of large surveillance camera networks. Currently, he is collaborating with researchers at Siemens Corporate Research to integrate some of these vision and analysis algorithms into a system that can identify unattended packages in public spaces such as airports, and with Honeywell Corporation on tracking people through very large camera networks. The image below illustrates a surveillance algorithm that can describe a scene as layers of objects (person, package, car), against a background.



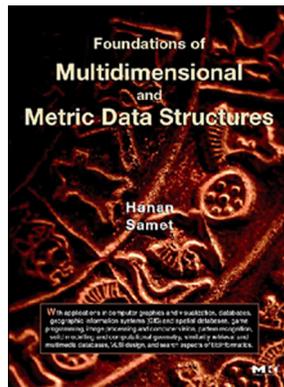
David Jacobs is an Associate Professor in the department. He came to Maryland from NEC Research in Princeton. His primary research focus has been on the problem of how to recognize objects in images. This is a central problem in vision that lies between concrete, lower-level vision problems and central cognitive systems that attempt to tie semantics to the world. It is also a critical problem in many applications in multimedia and robotics. He has also done quite a bit of work in the computational and psychological study of perceptual organization. This is the lower level problem of how to identify the surfaces of potential objects before recognizing them. His recent work in recognition has mainly focused on understanding how to recognize objects under varying lighting conditions, and how to match images of objects that may deform or otherwise vary non-rigidly. He has also been interested in using techniques from computer vision in developing user interfaces and in graphics. His group is applying some of this work to build an electronic field guide for botanists, using object recognition methods to automatically match the leaves of plants, shown below.



Ramani Duraiswami is an Assistant Professor in the department who works at the interface of scientific computing, computational audio and computer vision. He is interested in efficient scientific computing algorithms and their application to fundamental problems in computer vision. Ramani, along with Nail Gumerov – a research scientist in UMIACS – have done a significant amount of work on fast multiple methods, of which the Fast Gauss Transform is an important instance. Ramani has applied this scientific com-

puting research to vision problems including image segmentation, tracking and machine learning. These algorithms are becoming more important as large image and video databases can easily be collected. Ramani has an exciting research program on spatial audio – creating true 360 degree sound landscapes for future music systems and virtual reality. He is also exploring the combined use of computer audition with vision.

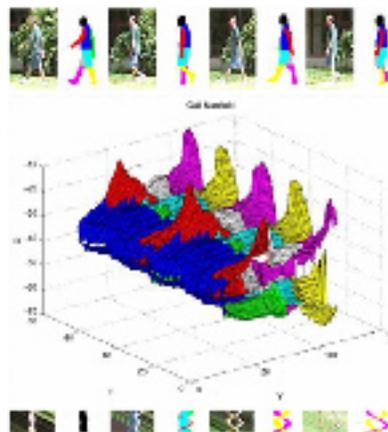
Prof. Samet has been with the department for thirty years and during that time has established himself as the world’s leading authority on spatial data representations and spatial database systems. His recently released monograph – *Foundations of Multidimensional and Metric Data Structures* – is already recognized as the definitive publication on methods for representing and searching spatial data. In his forward to the book, Turing Award winner Jim Gray of Microsoft wrote: “Hanan Samet is the dean of “spatial indexing”... This book is encyclopedic... this book will be invaluable for those of us who struggle with spatial data, or scientific datasets, or with graphics, and vision problems involving volumetric queries, or with higher dimensional datasets common in data mining.”



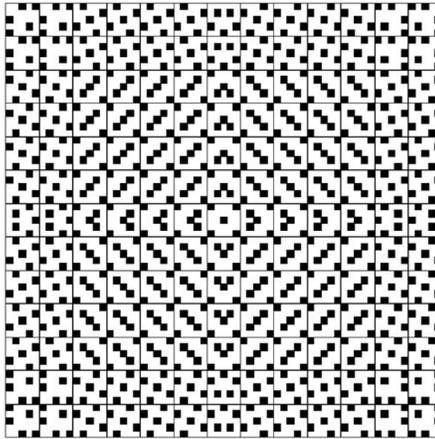
Foundations of Multidimensional and Metric Data Structures – is already recognized as the definitive publication on methods for representing and searching spatial data. In his forward to the book, Turing Award winner Jim Gray of Microsoft wrote: “Hanan Samet is the dean of “spatial indexing”... This book is encyclopedic... this book will be invaluable for those of us who struggle with spatial data, or scientific datasets, or with graphics, and vision problems involving

volumetric queries, or with higher dimensional datasets common in data mining.”

Prof. Rama Chellappa is a Professor in the Institute for Advanced Computer Studies and the Department of Electrical and Computer Engineering and is also an Affiliate Professor in the Computer Science Department. Prof. Chellappa came to Maryland almost fifteen years ago from the University of Southern California. Like Yiannis, he also did early pioneering work on motion estimation and structure from motion for video analysis. He has been working on problems related to human face recognition for more than a decade, and is widely recognized as one of the leading authorities on this subject worldwide. Some of his ongoing projects include developing new techniques for distributed smart camera networks through an integrated exploration of distributed algorithms, embedded architectures, and software synthesis techniques, new algorithms that can capture the structure of the human body from multiple video images of a person in motion, and PDA based remote sentry devices for monitoring scene acoustic and video through secure wireless network. The figure below illustrates some of Rama’s recent work on human gait analysis, and determining if a person is carrying a heavy load based on the way they walk.



The success of the Vision Laboratory is also due, in large part, to the contributions of its Research Scientists, especially Daniel DeMenthon, David Doermann, Cornelia Fermuller, and Yaser Yacoob. Daniel, currently on an assignment to the National Science Foundation as Program Manager of its Computer Vision Program, is an expert on estimating the pose of three dimensional objects in two dimensional images, among other areas. David and Yaser are both alumni of the lab who have stayed to establish their own reputations in the field. David is Director of the Language and Media Processing Laboratory and is an international leader in the field of document image analysis. Cornelia does research on human and computer vision. She has worked on computation of image motion, three-dimensional motion estimation, reconstruction and



shape estimation, and scene segmentation. Her recent work on how uncertainty in vision computations leads to geometric illusions is generally regarded as ground-breaking (see illustrative illusion to the left). Yaser has worked on problems related to human movement and appearance for over a



decade. His first project involved development of a vision system that could recognize human facial expressions from video. A robot that Yaser developed with IBM that recognizes and mimics human expression is shown to the left. One of its most famous applications was to the astronaut, Dave, in the film 2001: A Space Odyssey, as part of David Stork's (Ricoch Research) celebrated book comparing technology in the year 1999 (HAL's birth year) to the predictions in the classic film. Yaser's program successfully recognized that

Dave was upset – the same conclusion reached by HAL in one of the film's most famous scenes!

RECENT CS EVENTS

WOMEN IN COMPUTING DINNER



DEPARTMENT PICNIC



IN THE NEWS...

- Jonathan Katz gave a week-long course on Zero Knowledge: Foundations and Applications in Bertinoro, Italy.
- UMIACS was mentioned in a story about its work with NASA and Google Earth on a new 3D map called “Atlas of our Changing Environment”, which offers satellite images of 100 environmental hotspots from around the world. The story was reported in Scoop Independent News of New Zealand on September 15.
- Lise Getoor gave an invited talk at the Machine Learning Symposium at the New York Academy of Science.
- Justin Domke and Yiannis Aloimonos’s paper, “A probabilistic notion of camera geometry”, received a best paper prize at the 2006 Photogrammetric Computer Vision Conference in Bonn, Germany.
- Jik-Soo Kim’s paper, “Resource Discovery Techniques in Distributed Desktop Grid Environments,” received a best paper award at the International Conference on Grid Computing in Barcelona, Spain. The paper was co-authored by Pete Keleher, Beomseok Nam, Michael Marsh, Bobby Bhattacharjee, and Alan Sussman.
- Jim Hendler, C.S. and UMIACS, gave three talks in Beijing, China in September, including the opening Keynote at the first “Asian Semantic Web Conference” and a distinguished lecture at the Chinese Academy of Science.
- Adam Porter, C.S. and UMIACS, did a Google Tech talk on September 8 that is now up as a video on the Google website
- Dianne O’Leary was named a Distinguished Scientist of the ACM.
- Jessica Chang was chosen as a Philip Merrill Presidential Scholar for 2006-07.
- VS Subrahmanian, C.S. and UMIACS, was selected for inclusion on ISIHighlyCited.com – a web site run by Thomson Scientific and ISI as part of their ISI Web of Science citation rankings. According to ISIHighlyCited.com, ISIHighlyCited.com will grow to include the top 250 preeminent individual researchers who have demonstrated great influence in their field as measured by citations to their work in each of 21 subject categories. V.S. also was a winner of a 2006 Computerworld Horizon Award for the Opinion Analysis System software developed here at Maryland in partnership with the University of Naples in Italy.