

Computer Bytes



**Computer Science Department
New Mexico State University**

Fall 2003



Patty Lopez Receives Distinguished Alumni Award

Dr. **Patricia D. Lopez**, known to us all here as **Patty**, was one of three recipients of the College of Arts and Sciences Distinguished Alumni award in an October 31st. ceremony in Corbett Center. Patty Lopez was chosen for her outstanding work as campus representative for HP, for whom she works, and as a true friend to the department, the college and the university.



Patty Lopez received her three degrees, BS, MS and Ph.D., from NMSU, all in the Computer Science department. She graduated with a BS in 1980, an MS in 1982 and completed her doctoral degree in 1989, doing work in computer vision. She was one of the first doctoral students to work

closely with the Computing Research Laboratory, and with Professors **Victor Johnston**, **Keith Phillips** and **Derek Partridge**, who was her main advisor.

Her degree enabled her to get a job immediately with Hewlett-Packard as a software design engineer, and she is now an imaging scientist, working on new methods in scanning, printing and camera technologies.

However, it is really for her work at NMSU in the years since her graduation that she was recognized last month. She has made numerous trips back to campus as recruiter, and lately as unofficial ambassador. She serves on the Computer Science Board of Advisors and is also a member of the Electrical and Computer Engineering Academy.

Her hard work as our biggest industrial advocate has yielded the department more benefits. She was instrumental in getting the department a gift of forty Evo notebooks and twenty iPaq 5450 handhelds to start out new wireless laboratory and classroom (see story in this issue). She also was responsible for bringing Lueny Morell to visit the department in her capacity as regional representative for HP campus relations.

The awards ceremony was attended by many present and past members of the college, and Department Head **Roger Hartley** introduced

her with a short biography and a brief video clip of her days as a doctoral student at CRL. She was accompanied by her parents, her husband Robert, and her daughter, Marisa. Patty received a commemorative plate, engraved for the occasion, and basket of goodies including the mandatory photograph of the Organ Mountains, and other New Mexico and NMSU items.



It is hard to know here to begin to thank Patty for all she has done for the department in the past, and continues to do today, but the department owes her a huge debt of gratitude. Congratulations, Patty!

**See the story on the new
computer classroom
inside on Page 5.**

Computer Bytes

Computer Bytes is a production of the Computer Science Department of New Mexico State University, produced twice a year, in the Spring and Fall semesters.

Written and produced by the Computer Science Department faculty and Staff.

Edited by Roger Hartley.

For past issues or for copies of this issue, please contact csoffice@cs.nmsu.edu, or call (505) 646-3723.

Also available online at www.cs.nmsu.edu.

© Computer Science Department, New Mexico State University, 2004.

In This Issue

- 1 Patty Lopez Receives Distinguished Alumni Award
- 2 Message from the Chair
- 2 New Faculty Member Joins Department
- 3 College Appoints New Dean
- 3 New CSGSO President Takes Office
- 3 Streamlined Math Requirement
- 3 Fifth Summer Camp for Native Americans a Success
- 4 HP Campus Relations Director visits CS
- 4 Researchers get Itanium-based machines from HP
- 4 Jon Cook Gains Promotion and Tenure
- 4 New Professor Wins Grant
- 5 New GAANN Students starting in Spring
- 5 Jon Cook wins National Science Foundation grant
- 5 Department Founders Meet to Start Endowment Fund
- 5 CS to Open Mobility Classroom with HP Grant
- 6 CS Faculty
- 6 Adjunct, Part Time and Emeritus Faculty
- 6 CS Staff
- 6 Student Officers
- 6 Board of Advisors
- 6 Obituary
- 7 Giving back to the department

Message from the Chair

When I look back on the semester, I often try to answer the question "Did we make progress?". If the answer is "no", then I feel we have somehow not done our best. If the answer is "yes", then I know we are in good shape. However, being department head is no position for a 24/7 sceptic. It is a job of constant encouragement, reminders that we are on the right track, and, of course, the hard work of making it all happen.



This semester has been one of ups and downs, but overall I know we have made progress. There is a plethora of little details that every forward-looking department has to pay attention to. If we have addressed all the important problems, then progress has been made, even if some had no immediate solution.

The highlights this semester were welcoming a new Dean, making substantial progress on an on-line Masters' degree, finalizing the Math curriculum in CS, starting an endowment fund, initiated by the department's founders (please give generously!), hiring a new faculty member, starting our new minority recruitment and retention program, preparing a proposal for a center of excellence in bioinformatics, getting several faculty members elected to college and university committees, etc. etc. etc. I must also single out Patty Lopez's special weekend as College Distinguished Alumna. None of these are as important a last year's big infrastructure grant, but when added up, they mean that the department's direction is always forward. The coming year will, they tell us, be one of tight budgets. We will make every effort to keep things running at a high level.



New Faculty Member Joins Department



Dr. Amiya Bhattacharya will join the department in January as our newest Assistant Professor. Dr. Bhattacharya

graduated from the University of Texas at Arlington in 2002, and will join the present faculty in the systems areas.

His research is in network scheduling algorithms, but he covers the whole range of topics in networks, from wireless to protocols to security. He has been finishing a postdoctoral period at Arizona State University.

At NMSU he will work with **Drs. Ranjan and Pontelli** on algorithms, and with **Drs. Johnson and Horan** in Electrical and Computer Engineering. His position is a new one for the department, having been funded for five years by the National Science Foundation Infrastructure grant that the department won last year. After five years, the college has agreed to fund the position as a permanent addition. We are very pleased to have Dr. Bhattacharya join our ranks at NMSU.



College Appoints New Dean

The college of Arts and Sciences has a new Dean, following the retirement of René Casillas. **Dr. Waded Cruzado-Salas** comes to NMSU from the University of Puerto Rico at Mayaguez, where she was also Dean of the College of Arts and Sciences. Her academic background is in Spanish Literature, but her experience at UPR covered the full range of A&S departments. She has



been particularly successful at working with industry on behalf of the science departments, and this is where she will of most benefit to the Computer Science department. She has forged great relations with the HP corporation (see the story on Lueny Morell in this issue), and we look forward to good relationships with her as well. The department invited the new Dean for an overview and a tour of the department in August, and she was suitably impressed by the activities in the department, and the dedication of its faculty.



New CSGSO President Takes Office

The new president of the Graduate Student Organization is **Nina Javaher**, who is herself a brand new graduate student having graduated with a Bachelor's degree from the department last summer. However, Nina is no newcomer to taking the lead, having been very active in the student chapter of the ACM in the department as an undergraduate. Nina has taken on the daunting task of

becoming a graduate student, keeping up with her classwork, acting as the student liaison on the faculty committee, leading a willing team of graduate students in their many activities, and even getting engaged to be married!



She has made several contributions already to the life of the department and is doing her part to make the GSO even stronger than it is.



Streamlined Math Requirement

The department has streamlined the math requirement in the curriculum for CS majors. Up until this year, all students had to take two course in discrete mathematics, one at the 200 level and one at 300. The faculty voted to collapse these two three credit courses into one four credit course in order to make room in the curriculum for more computer science electives.

Furthermore, after discussions with the math department, it was agreed that the teaching of the new course would be shared; the two departments will teach the new course in alternate semesters. **Desh Ranjan** is teaching the course for the first time this semester, and it is the subject of one the focus groups that are aimed at improving retention of computer science students, especially when they are from a minority group. Preliminary results from these focus groups are encouraging; students that attended the sessions regularly are doing better in the course than those who do not.



Fifth Summer Camp for Native Americans a Success

As part of its commitment to the education of minority students, the department mounted its fifth summer camp, funded by the National Science Foundation. This year's camp was organized by **Harry Lujan, retired director of the NMSU American Indian Program**, and run by **Sarah Tsosie**.

We hosted fifteen high schools students from all over the state and, for the first time, invited participation from students from the two-year tribal colleges. We also welcomed two instructors in computing, one from Wingate High School and one from Crownpoint Technical College.

The high-school students were taught programming in Visual Basic by **Jon Cook**, who also introduced them to programming small mobile robots. **Desh Ranjan** handled the teaching of Math for Computer Science. The students also used standard tools to prepare their own web pages as a way of reporting on their activities at the camp. There were many successful field trips, both educational and recreational, to keep the students learning, and, as always, the final banquet included presentations by the small teams of students, as well as a whirlwind summary of the camp in images, words and music which was an instant hit. This may turn out to be the last of the high-school summer camps, as the new grant does not provide us with enough funding to do everything we want to accomplish. We are actively seeking additional funding so that these highly successful camps for Native American high-school students can continue.

Working with the tribal college students and the instructors enabled us to start the new grant off in good fashion. This ambitious program includes summer camps for tribal college students,

and retention programs for all minority students once they reach NMSU. Next summer's camp will see an expansion of these ideas, leading to a better understanding of the needs of Native American students and how to encourage them to become Computer Scientists.



HP Campus Relations Director Visits CS



Lueny Morell, who acts as the Regional Director of Campus Relations for HP, visited the department at the instigation of Patty Lopez. The faculty and staff all met with Ms. Morell, and she attended a presentation of the department's research and education capabilities. She was impressed by the department's commitment to research, and interested to hear where HP's vision of computing technology and the department's overlap.

HP now considers that Computer Science at NMSU stands with the best in the country, and is certainly outstanding in the region. We hope that this elevation if HP's eyes will yield many fruitful collaborations in the future.



Researchers Get Itanium-based Machines from HP

Professors **Enrico Pontelli**, of Computer Science, and **Eric Johnson** of Electrical and Computer Engineering were award-

ed three Itanium-class machine from HP as part of their program to put the latest 64-bit technology in the hands of researchers. The machines will be used in ECE to give students hands-on experience of these powerful computers, and Enrico Pontelli will use the platform to support his research into the compilation of logic programming programs.

This new technology enables academic departments like ours to keep abreast of the latest offerings of industry. HP is proving to be an important partner in this area.



Jon Cook Gains Promotion and Tenure



Dr. Jonathan Cook, who has been at NMSU for six years, was promoted to Associate Professor and awarded tenure earlier this year. Jon does research into software engineering at a very practical level. His research is all about understanding and manipulating the dynamic behavior of systems. This includes dynamic analysis techniques, runtime monitoring and manipulation of the evolution of a system. He has taught courses in beginning architecture, networks, and, of course, software engineering. He was the first teacher in our summer camps for Native American high schoolers, and also taught the camp this last summer (see report in this issue). His commitment to the department has been well demonstrated over the years, and the department is fortunate to gain such a dedicated indi-

vidual as its newest permanent member.

We should also add that his, wife, Dr. Jeanine Cook, recently became an Assistant Professor in the Electrical and Computer Engineering Department. This makes for one very formidable pair of academics, who might be intimidating were it not for the fact that they are the most delightful couple you would want to meet. Many deserved congratulations are due to them both.



New Professor Wins Grant



Dr. Jing He, one the department's newest professors has been awarded a grant by Sandia National Laboratories under the Sandia University Research Program.

This program provides seed research funding support to new faculty researchers. Tenure track faculty with no more than two years at the sponsoring university are eligible to apply. It is a one year grant, renewable for one more year depending on the progress of the project. NMSU has three funded proposals this year.

Jing's project is to develop a computational method in building initial protein structure library using constraints from 7-9 angstrom resolution maps of the protein. She will be working with **Dr. Jean-Loup Faulon**, the collaborator at Sandia, who has been working on the computational methods in membrane protein prediction.



New GAANN Students starting in Spring

The department's proposal to the Department of Education's program for Graduate Assistants in Areas of National Need (GAANN) was successful. This grant will fund five of six students who are aiming to get a doctoral degree, for three years of graduate study. Each student can be awarded a fellowship of up to \$19,000 as an annual stipend, together with money for books, equipment and travel. It is awarded to students who have demonstrated financial need, and is aimed at those students who might not otherwise be able to afford to attend graduate school.

The early winners of the fellowship are **Kevin Streander** and **Katie Ray**. These will be joined by **Brian Cloteaux** and **Brian Palmer** next Fall. If you, or someone you know, is interested in these fellowships, please contact the department. We are looking for outstanding students who need support while studying for a Ph.D.



Jon Cook Wins Research Grant

Dr. Jonathan Cook has been awarded \$230,000 by the NSF to study better ways to upgrade complex computer systems. The grant will run for three years, and enable Jon to take his research to the next level.

Modern, complex software systems are often composed of large number of independently compiled modules. Moreover, programs often rely on many modules embedded in the operating system. When one of these is changed, thought upgrading or bug fixes, the consequences on the rest of the system are unpredictable. Jon has proposed a way to keep track of all these

changes so that modules can be freely swapped in and out when necessary.

This work will help system administrators and software developers to produce more reliable software.



CS to Open Mobility Classroom with HP Grant

The department has won an award from HP philanthropy to set up a new classroom in Science Hall to introduce wireless technology to beginning Computer Science students. The grant, which was joint with the Mechanical Engineering department, has supplied us with forty Evo notebook computers, twenty iPaq handhelds, two wireless access points and ancillary equipment. The total amount of the gift to Computer Science was \$110,000.

These new computers will be deployed in a classroom which has been created out of part of the big J Mack Adams Laboratory which serves our undergraduate student population. It will be a reconfigurable room, thanks to the wireless technology, so that stu-

dents may attend to the instructor at the front of the room, in standard fashion, but may also work in groups when the class calls for it. The two diagrams



show the room in both configurations.

Initially the room will be used for beginning students in CS171 and CS272, our first two courses for CS majors.

The department has installed



wireless access points to augment the two supplied with the grant to cover the whole of the first floor of Science Hall, and will extend the coverage to the two classrooms in the classroom wing of the building next semester.



Department Founders Meet to Start Endowment Fund

In a rare reunion last April, the key people involved in the earliest days of the department got together for a delightful lunch at a local restaurant. The occasion was

the creation of an endowment fund in the name of these tenacious pioneers ("The Founder's Fund"). The occasion was organized by Don Dearholt. Pictured, left to right, are **J Mack Adams**, the department's first Head, **Pasha Hussein**, **Dick Stark**, **Don Dearholt** and **Tom Puckett**. Absent was **Johnny Johnston**, who was unfortunately unable to attend.



CS Faculty

Roger T. Hartley, Department Head, Associate Professor
Amiya Bhattacharya, Assistant Professor
Jonathan Cook, Associate Professor
Jing He, Assistant Professor
Clinton Jeffery, Assistant Professor
Hing Leung, Associate Professor
Joseph J. Pfeiffer, Jr., Assistant Professor
Inna Pivkina, Assistant Professor
Enrico Pontelli, Associate Professor
Desh Ranjan, Associate Professor
Esther Steiner, College Professor
Son Cao Tran, Assistant Professor
Karen Villaverde, College Assistant Professor

Adjunct, Part Time, Emeritus Faculty

Richard Dale, College Associate Professor - Part Time
D. Hue McCoy, College Professor - Part Time
J Mack Adams, Professor - Emeritus
Frank Harary, Distinguished College Professor - Emeritus
John B. Johnston, Professor - Emeritus
Richard H. Stark, Professor - Emeritus
Gopal Gupta, Professor - Adjunct
Arthur I. Karshmer, Professor - Adjunct
Janyce M. Wiebe, Associate Professor - Adjunct
John Barnden, Professor - Adjunct
Shaun Cooper, Assistant Professor - Adjunct
Jim Cowie, Professor - Adjunct
William Ogden, Adjunct

CS Staff

Ivan Strnad, Manager System Support - Computer Operations Group
Mathew Hulin, Analyst II - Computer Operations Group
Reina Clark, Secretary III - Computer Science Office
Machele Raglin, Secretary II - Computer Science Office

Student Officers

Nina Javaher, President, Graduate Student Organization
Nicholas Gortari, President, ACM Student Chapter

Board of Advisors

David Ehenbuske, IBM
Julie Hall, Lockheed-Martin
Patricia Lopez, HP
J Strother Moore, University of Texas at Austin
Russell Noftsger, Pilgrim Telephone
Arlene Yusunckis, Agilent

Obituary

We are very sad to have to report as we go to press that **Don Dearholt** passed away on Thanksgiving Day after a mercifully brief battle with a rare autoimmune disease. We will miss him greatly. It is doubly sad since he had just created two endowment funds for the department as his way of giving back to the department which he helped to found, and to which he had returned to enjoy his retirement. A much fuller account of Don's contributions to the department will in the next newsletter.

Giving back to the department

Fifteen years ago, the Computer Science department had one VAX minicomputer (remember those?) and a bunch of terminals. Punched cards were still in use in the computer center.

Now we are in a new building, with hardware that is the envy of many computer science departments. We have a huge laboratory for teaching, and special labs for graduate students and research programs. We recently took delivery of a RP8400, which is a large 16 processor server as part of a donation from HP and grants from the National Science Foundation have bought us two Beowulf clusters. Every teaching assistant has an up-to-date machine, and every faculty member

has a fast workstation on his desk.

So are we happy? Well, yes ... and no. Maintenance of this large network of heterogeneous platforms (Linux, Solaris, SunRay, Mac, Windows) is a technical nightmare for our computer operations group. Monitors wear out, disk drives crash, machines break, networking cable dies. It all requires money to keep the system going at full strength.

In addition to hardware maintenance costs, we want to maintain an active colloquium program, to run a local job fair every semester, and to keep our advisory board at full strength. All these costs are extra to our regular budgets for teaching and administration.

What is more, faculty, staff and students deserve more money than the state provides. The whole IT business is still strong, despite the downturn in the economy and the demise of many dot coms but we often get left out of

the picture by the state legislature. However, we are actively exploring the possibility of getting the formula funding from New Mexico changed to give CS more money. Also we are constantly pushing at the Dean and the administration to raise salaries and make the department more competitive. We are always trying to help our students with more and better scholarships to enable them to finish their degrees and go and get a wonderful job.

You can also play your part by donating as much as you feel you can give to the department. Your donation will be greatly appreciated and we guarantee that it will be used wisely, for the well-being of the department. Whether your donation goes to scholarships, or a general departmental fund, or you would like to earmark it for some special project, we will take care of your money. Thank you for your support!

Please photocopy and cut out this form to return with your gift.

Name: _____ Graduation year (if applicable): _____
Address: _____
City: _____ State: _____ Zip Code: _____
Phone: _____ eMail address: _____

Yes, I want to help the Computer Science department at NMSU. Enclosed is my check for:

_____ \$1000 _____ \$500 _____ \$250 _____ \$100 _____ \$50 _____ \$25 _____ \$10 _____ other

I want my gift to benefit:

Richard H. Stark Scholarship _____ Founders' Endowment Fund _____
General Scholarships _____ Equipment maintenance _____ Software upgrades _____
Laboratory equipment _____ Other - please specify _____

Please make your check payable to the NMSU Foundation and mail it to



Roger Hartley,
New Mexico State University,
Department of Computer Science,
PO Box 30001 MSC CS, Las Cruces, NM 88003-0001



Contacts:

Department

Web site: <http://www.cs.nmsu.edu>
Graduate student organization:
<http://www.cs.nmsu.edu/~gradrep>
email: csoffice@cs.nmsu.edu
Telephone: +1 (505) 646 3723
Fax: +1 (505) 646 1002
Surface mail:
New Mexico State University
Department of Computer Science
P.O. Box 30001, MSC CS
Las Cruces, NM 88003-0001

Parcel deliveries:
New Mexico State University
Department of Computer Science
Science Hall, Rm 123
Stewart Street
Las Cruces, NM 88003

**Department of Computer Science
New Mexico State University
Las Cruces, NM 88003**

Graduate School

Web site: <http://www.nmsu.edu/~gradcolg>
Telephone: +1 (505) 646 0111
email: gradinfo@nmsu.edu
Telephone: +1 (505) 646-2736
Fax: +1 (505) 646-7721
Surface mail:
**The Graduate School
P.O. Box 30001, MSC 3G
New Mexico State University
Las Cruces, New Mexico 88003-8001**

TO: