brain+cognitive sciences
Spring 2006

BCS RESEARCH ACTIVITIES

Professor Bob Desimone has been working on defining how the brain focuses on a specific target when the object is in a chaotic or complicated scene. It appears that select brain cells may unite to accomplish this. Brain cells specialized for a specific type of sensory signal—such as color—may be primed by a feature of the object and become more active than usual, and other cells, activated by other aspects of the object, such as shape, may join them. Lab members are trying to determine what mechanism is involved in making these activated cells act in concert to ensure that the brain avoids focusing on anything else in order to target the specific object. It is the synchronization of the individual neurons that is of special interest to the group.

The March 2006 online *Proceedings of the National Academy of Science* featured a paper by Research Scientist Rutledge Ellis-Behnke (lead author) and Professor Jerry Schneider. They report on a process they call nanoknitting, which used biodegradable nanofibers to reconnect a hamster's optic nerve which had been cut. The fibers seemed to create a scaffold that helped heal the brain tissue and let axons regrow. This could be very useful in repairing damage which may occur during brain surgery, though it will probably be at least a few years before this can be attempted. In addition, the fact that the cut in the experiments was clean rather than a ragged tear, which is more common when caused by a stroke or accident, might also have made the repair easier. Furthermore, the blind mice were not totally cured. Ellis-Behnke says that a cure would probably involve several factors.

Professor Nancy Kanwisher, Grad Student Rebecca Frye Schwarzlose, and Postdoc Christopher I. Baker at MIT's McGovern Institute for Brain Research are now using their higher-resolution scans to produce much more detailed images of the brain than were possible just a couple of years ago. The results provide some of the strongest evidence ever reported for extreme specialization within the brain. The study focuses on face recognition, long considered an example of brain specialization. At this higher resolution they could clearly distinguish two neighboring regions. One was primarily active when people saw faces (not bodies), and the other when people saw bodies (not faces). This finding supports the original claim that the face area is in fact dedicated exclusively to face processing. The results further demonstrate a similar degree of specialization for the new "body region" next door. Their study appeared in the Nov. 23 issue of *The Journal of Neuroscience*.

Some combinations of musical notes sound pleasing, or consonant, and some do not. The origins of this preference are unknown. It could be unique to humans, perhaps learned from exposure to human culture, or evolved as part of an adaptation enabling the appreciation of music. Alternatively, it could be a byproduct

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Faculty, students and candidates gather in the atrium for Graduate Interview Weekend 2006.

MESSAGE FROM THE DEPARTMENT HEAD

Mriganka Sur

The end of 2005 was noteworthy because our move to our new building was completed and celebrated with an impressive day of ceremonies on December 2. The occasion coincided with the 40th anniversary of the granting of the first doctoral degrees by the department. Two of our first four Ph.D.s—Donald Pfaff, and Whitman Richards—returned for the occasion. The events included a morning symposium, afternoon dedication ceremony, and an evening reception. At dinner, our current grad students immortalized the department's history in songs and skits, while Suzanne Corkin did so in poetry.

Our new space is an important opportunity to move forward with our mission: to provide outstanding undergraduate and graduate education and training, and engage in cutting edge research. An on site café, almost daily seminars, and informal gatherings sponsored by the Picower and McGovern Institutes continue to enhance the sense of departmental community which is anchored by the BCS Friday Colloquium and reception.

Our new building allows us to enlarge our faculty and research laboratories through additional appointments, especially in the Picower and McGovern Institutes. I am also

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SPRING 2006 CALENDAR OF EVENTS

Mondays Brain Lunch
Tuesdays Cog Lunch
Wednesdays Brains & Machines Lecture Series
Alternate Thursdays Plastic Lunch
Fridays BCS Colloquia followed by Departmental Tea
Alternate Fridays BCS Vision Seminar Series

SPECIAL EVENTS

Tuesday, April 11 THE BIDWELL LECTURE, 4:00 PM, 46-3002
Peter Strick, Ph.D., Professor, Department of Neurobiology and Co-Director CNBC, University of Pittsburgh
"Building Blocks for Movement in the Motor Cortex"

Friday, May 5 HANS-LUKAS TEUBER MEMORIAL LECTURE, 4:00 PM, 46-3002
Ranulfo Romo, M.D., D. Sc., Professor of Neuroscience, Institute of Cellular Physiology, National Autonomous University of Mexico
"Conversion of Sensory Signals into Perceptual Decisions"

Massachusetts Institute of Technology

If you would like to be put on the newsletter mailing list, or have information you would like to have published, please contact:
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BCS Alumni Please Keep In Touch
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REMARKS AT THE DEDICATION CEREMONY OF THE BRAIN AND COGNITIVE SCIENCES COMPLEX

December 2, 2005
Mriganka Sur

There are moments, it is said, that cleave history. Points, events, that when considered in the fullness of time clearly divide what came before from what comes after. I believe, if I may be allowed to wax just a shade rhetorically, that for this department, for MIT, and perhaps for the history of our attempt to understand the brain and mind, the days that follow December 2, 2005 will always be known as after.

Forty-five years ago, in days before, Hans-Lukas Teuber established a new Department of Psychology at MIT with the then-radical concept that the study of the brain and the study of the mind are inseparable. Today we celebrate this historic vision, and those who made it possible—the people of BCS, its extraordinary faculty, students and staff.

The vision of an integrative science of brain and mind is deeply synergistic with the vision of MIT itself—using interdisciplinary, cutting edge, approaches to solving big problems. And understanding the brain and mind, in health and in disease, is widely acknowledged as the next great frontier of science.

Forty years ago, we saw the first fruit of Teuber's vision when the Department awarded its first doctoral degrees—an anniversary that we also commemorate today. Education, both undergraduate and graduate, has always been at the core of the Department's mission and there is no more rewarding moment for us than when we present to the world a new graduate—one educated and trained with the best we have to offer—one who we deem ready to continue the work of those who came before. We are proud and amazed by what our graduates have achieved and it is especially fulfilling to celebrate them today.

Five years ago MIT made the extraordinary commitment to build the finest facilities in the world—to bring all research and education in neuroscience and cognitive science, and our two research institutes, the McGovern Institute for Brain Research and the Picower Institute for Learning and Memory, under one roof. The past five years of design, programming and construction have brought us to this point—the culmination of 'before' and the beginning of 'after.'

The human mind creates art, such as this beautiful building designed by Charles Correa—and it also creates science. That science is a product of the human mind may come as a surprise to some, because science is often regarded as a linear progression of experiments or discoveries till a problem is solved or a mystery uncovered. But the best science often works the other way around. A discovery is first imagined in the mind of the scientist, and later shown to be true by experimentation. I believe that this building, by bringing together researchers who work at all of the levels of complexity required for understanding the brain and mind—its molecules, neurons, neuronal networks, and cognitive modules—will catalyze our imagination by triggering new ways of thinking and knowing. And I believe this building, with its soaring spaces and light, will expand the imagination of our students to imagine new possibilities and discoveries. I truly believe that great science will come from this building.

I wish to thank the many people who have helped us get to this point. I thank our principal donors—Lore and Pat McGovern and Barbara and Jeffry Picower—for their extraordinary gifts. I thank the Visiting Committee of the Department of Brain and Cognitive Sciences, led by Barrie Zesiger, for their staunch support of the BCS vision. I thank the architects, Charles Correa Associates and Goody Clancy Associates, for this exciting building with its amazing laboratories. I thank the Project Team, led by Arne Abramson, for their untiring commitment. I thank the BCS staff, led by John Armstrong, for their exemplary dedication. And last but not least, I thank the MIT administration, led by Charles Vest, Bob Brown, Bob Silbey and Susan Hockfield, for their understanding and resolute confidence. To all of you—we shall not let you down!

Left: MIT President Susan Hockfield speaks at the Dedication Ceremony for the Brain and Cognitive Sciences Compex.
Above: Reception and tours round out the afternoon.

John Gabrieli and Susan Whitfield–Gabrieli

JOHN GABRIELI

Born in NYC, John Gabrieli actually spent his childhood and adolescence in Buffalo, which seems to explain his diehard support of the Buffalo Bills, even attending their two "tragic" Super Bowls. His interest in science, however, can probably be traced to his father, a pathologist who did a great deal of research on the use of computers in medicine.

John also has an affinity for fiction, and at Yale he was an English major with a predilection for the drama department. He directed plays such as Agatha Christie's Witness for the Prosecution and Kean, a play about Shakespearean actor Edmund Kean written by Alexander Dumas and then rewritten by Jean Paul Sartre. John also wrote and directed his own play, a mystery.

After college, he floated a bit, unclear as to what direction to take. His ultimate choice was quite serendipitous. While in the Harvard Coop, he noticed a book about neuropsychology dealing with the brain basis of thoughts and feelings, and read about five pages of it. He found it "pretty cool." Shortly thereafter, he had an appointment with someone who asked about his interests. Lacking any other response, and with the book fresh in his mind, he answered neuropsychology. The person he was with then encouraged him to talk to Suzanne Corkin, who ultimately had a phenomenal impact on John's future. Sue let him volunteer in her lab and participate in the research, thus providing him with experience he didn't have. He kept waiting for Sue Corkin to tell him to call her Sue, as everyone else does, and he is sure that, for quite a while, he was the only person at MIT calling her Professor Corkin. John went on to become a Research Assistant and later entered the graduate program. The chance to work with HM inspired John's primary interest in learning and memory. Sue's work on Alzheimer's Disease also influenced him because, in addition to doing basic research (especially using imaging), he is engaged in studying diseases and disorders which affect a lot of people.

After 4½ years in graduate school at MIT, John went to Steve Kosslyn's lab at Harvard as a postdoc to study hemispheric specialization (right and left brain differences). This was followed by a 3 year assistant professorship at Northwestern and the next 15 years at Stanford. Now back at MIT, he feels like he has come full circle. John comments that it is funny to come back to where he had done his graduate work, and especially to the space where he had spent most of his time. Almost all his research had been done at the Clinical Research Center here, and now he is co-director of it. In addition, a surprisingly large number of his former teachers are now his colleagues, which made it awkward at first.

Over the years, John's focus has remained on learning and memory, but it has broadened to include related issues such as the interaction between emotion and memory and a range of disorders that include learning and memory such as dyslexia, autism, and Alzheimer's Disease. He is currently planning to research how the brain develops in children normally as compared to abnormally with diseases such as dyslexia, autism, and ADHD; as well as the transition from healthy aging to Alzheimer's. His primary research tool is brain imaging, especially fMRI. The earlier you can identify abnormal development, the greater your chances of effecting change.

John and wife Susan, now a Research Scientist and also at MIT, met when Susan was hired at Stanford to direct the statistical analysis of the brain imaging studies, a role which frequently brought them together. They enjoy spending their free time playing tennis, reading, and seeing movies.

John came back to MIT because of all it has to offer and because his mother and brother are in the area. In addition to holding a joint appointment as Professor of Cognitive Neuroscience in BCS and the Grover Hermann professorship in Health Sciences and Technology, he is co-director of the CRC, an Affiliate of the McGovern Institute, and Director of the Athinoula A. Martinos Imaging Center at the McGovern Institute for Brain Research. From his first days back here, he has been juggling the various administrative jobs and trying to balance them with research and teaching.

He considers himself very fortunate to have come back in time for the great transformation of neuroscience at MIT: institutes like McGovern and Picower enhancing our academic department, our own state-of-the-art imaging center, and a neuroscientist as president. Susan Hockfield had been Dean of the Graduate School at Yale when he was being recruited, and John was already committed to being here when she was hired to be president. John emailed her that he wouldn't consider being at a school where she wasn't president, and she responded that she wouldn't consider being president at a school where he wasn't on the faculty. Now everyone is happy.

NEW BEGINNINGS

Assistant Professor Alan Jasanoff and wife Luba Katz welcomed daughter Nina Miriam Jasanoff on September 23, 2005.

Assistant to the Director of the McGovern Institute, Gayle Lutchen, and husband Ken welcomed daughter Jennifer Phyllis on November 22nd.

Postdoctoral Associate Gabriel Kreiman and his wife Mariela Zirlinger, a postdoc at Harvard, have a new daughter, Betina Tatiana, born December 12th. Her 4 year old brother is reported to be happy about her arrival—so far.

Postdoctoral Fellow Toshimasa Sakamoto and wife Yuka have a new son, Ray, born on February 25th.

Postdoctoral Associate Mark Nieuwenstein and wife Marike had a baby girl, Julianne Jorinde, born June 5th.

On June 21, Postdoctoral Fellow Aleksandra Perovic and husband Stephen Lewis welcomed daughter Anastasia Irene.

Professor Pawan Sinha and wife Pam Lipton welcomed son Darius on June 25th.

Assistant Professor Chris Moore eloped with Willamarie Moore on September 9th on their back porch.

Postdoctoral Associate Patrick Shafto and Carissa Kemp were married on May 14.

Laura Schulz with two of her subjects

LAURA SCHULZ

Laura recently joined the BCS faculty as an Assistant Professor of Cognitive Sciences, but as a child, her main interest was natural history and she thought about someday becoming a zoologist. The first step in that direction came at age 13 with a job at the Cleveland Museum of Natural History, which had a wildlife rehabilitation center, and one of the first bald eagle artificial insemination programs in the country. She had the opportunity to hold the baby eagles, and also feed foxes and other wildlife. However, she was also interested in education and working with children. As a sixth grader, she tutored third graders and, during her adolescence—including her college years—she worked at summer camps.

A philosophy major in college (the University of Michigan), she also worked as a docent, taking children on tours of the Exhibit Museum of Natural History (Ann Arbor) and leading planetarium shows. She also managed to find time to teach at a literacy program. One of her clients was a dyslexic child and the only advice teachers could give her was to be patient and supportive; shallow advice for a deep problem. Frustration with such advice helped to spark her interest in cognitive science.

Graduation was followed by numerous education jobs, which included outdoor science programs such as one in the San Bernardino Mountains where she taught sixth graders about plants, astronomy, geology, and ecology. She also spent three summers in Washington, D.C. working with children from housing projects and homeless shelters. In 1993, she moved to Oregon with a friend who wanted to work on a ski patrol. Once there, Laura became director of a youth program for housing projects, and did experiential educational programs for the North Portland Youth and Family Services, working with both mainstream and at-risk adolescents. She developed programs and activities designed to develop problem solving skills as well as to keep the children busy and out of trouble. Later, she developed a leadership program for low-income middle school girls in partnership with the YWCA.

Eventually however, she realized she couldn't always work for $8/hour and no benefits—and she missed school. Her last non-academic job was for Planned Parenthood, where she confirmed that she is not missing her calling as an administrator. She came very close to being a high school teacher but managed not to attend any of the numerous education programs to which she applied. She finally faced up to the fact that she was over the "real world" and applied to doctoral programs. For family reasons, she was committed to Portland—and Portland had no graduate programs in psychology or cognitive science. She limited her applications to schools located within 2½ hours from Portland (by any form of transportation). That is how she ended up "commuting" to Berkeley.

Laura always assumed that, after graduating, she would return to Portland. However, her partner sold her business and became more mobile and while it was difficult to leave the Pacific Northwest, they found Boston and MIT to be an opportunity they couldn't refuse.

Laura's research interest is in the fundamental mechanisms of learning. She has shifted her focus somewhat from studying the link between patterns of evidence and causal inference to looking at the link between inference and action (because action is a critical source of evidence). Her current hypothesis is that children's play is importantly systematic: children selectively explore when evidence is ambiguous, either in itself, or with respect to children's naïve theories. She is very excited about a new partnership between her lab and the Museum of Science's Discovery Center where she is currently testing children aged sixteen months to six years. Eventually, she would like to develop a formal and empirical account of the relationship between curiosity, exploration, theories and evidence. She hopes to understand better how children's actions are constrained by their theories and how children's actions lead to evidence that supports new learning.

When not acclimating herself to MIT or engaged in teaching and research, Laura spends time with her family. Laura and her partner, Sue Kaufman, the Executive Director of the Urban Medical Group—a non-profit health care practice providing primary care to chronically ill, elderly and disadvantaged patients—are also the parents of two children. Daughter Martha is 20 and a student at Wesleyan, and is interested in playwriting and modern dance. Son Henry, 16, attends Brookline High and is in the Boston Ballet's training program. While the family enjoys backpacking along the Pacific Crest Trail, they are now confining their walks to Boston, getting to know the city and what it has to offer. They alternate between braving the snow for urban cross-country ski adventures and curling up by the fire at home with books.

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Message from the Department Head

initiating a major review of our undergraduate and graduate educational programs. Towards this goal, I have set up a faculty Education Committee with Nancy Kanwisher and Mark Bear as co-chairs. Additional members include Elly Nedivi, the new BCS Academic Officer, and Mathew Wilson, the new Graduate Committee Chair, as well as John Gabrieli, Ted Gibson, Sebastian Seung and Morgan Sheng. The committee is charged with an evaluation of the BCS graduate and undergraduate curricula, along with addressing the following specific questions: Are we teaching what we should be, as a leading department of neuroscience and cognitive science? Are our undergraduate and graduate programs well organized? Are we teaching in the best way? As our department grows in the numbers of faculty, graduate students and undergraduate majors, it is imperative that the quality of our teaching and curriculum keep pace with our research. Periodic stringent reviews of our educational programs are the only way to ensure this excellence.

photo: John Rubin

MOLLYFEST

A celebration for Molly Potter to acknowledge her contributions to our field and our lives, December 4, 2005.

Front row: Nancy Kanwisher, Rhonda Friedman, Molly, Virginia Valian, Judy Kroll.
Back row: Nancy Hopkins, Daphne Bavelier Yaoda Xu, Mark Nieuwenstein, Jodi Davenport, Helene Intraub, Marvin Chun.

RECENT AWARDS AND HONORS

FACULTY

Ted Adelson has been elected to the National Academy of Sciences.
Emilio Bizzi was awarded the President of Italy Gold Medal for achievements in science.
James Dicarlo received an MIT Surdna Award and a McKnight Scholar Award.
Ann Graybiel was awarded the first Harold S. Diamond Professorship by the National Parkinson Foundation.
Elly Nedivi was promoted to Associate Professor with tenure.
Aude Oliva received an NSF Career Award.
Morgan Sheng received the French Fondation ISPEN's 2006 Neuronal Plasticity Prize.
Molly Potter was honored at the "Mollyfest," an event hosted by Nancy Kanwisher.
Pawan Sinha was promoted to Associate Professor with tenure.
Mriganka Sur was elected a fellow of the Royal Society, U.K..

STAFF

Administrative Assistant John Canfield was awarded a Spring 2006 School of Science Infinite Mile Award for Outstanding Achievement for his service to the Department.
Research Scientist Jill Crittenden was presented with the UROP Graduate Student Mentor Award.

GRADUATE STUDENTS

The Angus MacDonald Awards for Excellence in Undergraduate Teaching were presented to: Gül Dölen, Theresa Feledy, Eric Jonas, David Nguyen, Aaron Andalman, Kathleen Cho, Vincent Cheung (HST), Tom Davidson, Becca Schwarzlose and Liz Baraff Bonawitz.
The Walle Nauta Awards for Continuing Dedication to Teaching were awarded to Lena Khibnik, Monica Linden, Josh McDermott, Ben Balas, and Amy Perfors.

UNDERGRADUATE STUDENTS

Ashley R. Catalano, Brigid C. Dwyer, Walter C. Lin, and Ryu Yoshida were elected to Phi Beta Kappa.
Uta Maeda ('07) and Madezhda Belova ('06) were awarded Peter J. Eloranta Summer Undergraduate Research Fellowships.
The Hans-Lukas Teuber Award for Outstanding Academics was presented to Meredith Brown, Ashley Catalano, Brigid Dwyer, Kathleen Gallagher, Jonathan Karr, Walter C. Lin, and Ryu Yoshida, (all are class of 2006).
Honorable Mention for Outstanding Academic Record (for Juniors in BCS) was given to Gilad D. Evrony, Joseph E. Goldbeck, Lara Hershcovitch, and Jeffrey D. Moore.
The Walle Nauta Award for Outstanding Research (by Seniors in BCS) went to Lauren Fishkin, Darlene Ferranti, Meredith Brown, Michael Churchill, Walter C. Lin, and Jonathan Reinharth.
Honorable Mention for Outstanding Research (by Juniors in BCS) was presented to Sun Mi Yoo.

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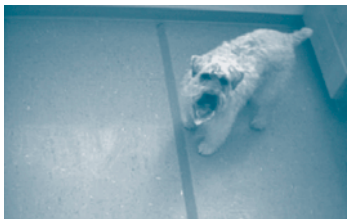
BCS Research Activity

of some more general feature of the mammalian auditory system, in which case one would expect to find it in nonhuman animals like dogs. To distinguish between these possibilities, BCS grad student Josh McDermott and colleagues are testing various species of animals, including dogs, to see if they prefer consonance over dissonance. Dogs are placed in a room; when they are on one side they hear consonance, on the other, they hear dissonance. The dog thus controls what it hears, and we can measure how much time they spend on each side of the room as a measure of preference. If you would like to have your dog participate please email: *jhm@mit.edu*.



Sandy Corkin—a star subject in the experiment.

Professor Chris Moore's lab discovered a new 'micro' map in the rat barrel cortex, one that codes for tactile motion direction and is organized on the spatial scale of a few hundred microns. These findings, taken with their other discovery of systematic frequency maps on a 'macro' scale (across several millimeters) in this cortex, suggest that multiple interleaved maps are the signature of high-resolution sensory processing. This finding also suggests that these kinds of maps exist in the rodent, an ideal model for genetic, behavioral and systems-level analyses. This work appears in the April issue of *Nature Neuroscience*.

Professor Elly Nedivi, of BCS and the Picower Institute for Learning and Memory reports in the Dec. 27 issue of *Public Library of Science (PLoS) Biology* that structural remodeling of neurons does in fact occur in mature brains. This finding means that it may one day be possible to grow new cells to replace ones damaged by disease or spinal cord injury, such as the one that paralyzed the late actor Christopher Reeve. The study's co-authors—Nedivi; Peter T. So, an MIT professor of mechanical and biological engineering, BCS graduate student Wei-Chung Allen Lee, and Hayden Huang, a mechanical engineering research affiliate—used a method called two-photon imaging to track specific neurons over several weeks in the surface layers of the visual cortex in living mice. With the help of technology similar to magnetic resonance imaging (MRI), but at a much finer, cellular resolution, the researchers were able to stitch together two-dimensional slices to create the first 3-D reconstruction of entire neurons in the adult cortex. Dendritic branch tips were measured over weeks to evaluate physical changes. "The scale of change is much smaller than what goes on during the critical period of development, but the fact that it goes on at all is earth-shattering," Nedivi said. She believes the results will force a change in the way researchers think about how the adult brain is hard-wired.

Center for Biological and Computational Learning, (CBCL), has recently completed a 120 page memo, "A Theory of Object Recognition: Computations and Circuits in the Feedforward Path of the Ventral Stream in Primate Visual Cortex," (available on the CBCL website), which summarizes the group effort over the past 6 years in developing a quantitative model of primate visual cortex to account for some of the basic properties of the physiology and the psychophysics of object recognition. The paper summarizes a host of data accumulated over the years which are compatible with the model (including recent data from inferotemporal cortex collected at the McGovern Institute in Professor Jim DiCarlo's lab). Particularly striking is the model's ability to perform robust invariant object recognition in natural photorealistic images, i.e. the object to be recognized is embedded in natural cluttered images, at a level that competes with and even outperforms some of the best computer vision systems on several standard image datasets. Recently BCS graduate student Thomas Serre, Professors Aude Oliva, and Tomaso Poggio have shown that the model could predict the level of performance of human observers in a rapid animal vs. non-animal categorization task. They thus have a probable first; i.e., the illusion of something like the skeleton of a model of the ventral stream in visual cortex.

Professor Josh Tenenbaum and former student Tom Griffiths have found evidence that people's intuitive predictions about the durations or magnitudes of everyday events can be explained as approximations to optimal Bayesian inferences. Most strikingly, people appear able to make Bayesian predictions under several very different kinds of prior distributions, and they implicitly estimate the form and shape of the prior appropriate for a wide range of everyday events. This research will appear in the journal *Psychological Science* and was also featured in an article that appeared in *The Economist* in January 2006.

After running a maze, rats mentally replay their actions, but backward, like a film played in reverse, reports Professor Matt Wilson of BCS and the Picower Institute for Learning and Memory on Feb. 12 in the advance online edition of *Nature*. In 2001, Wilon reported that animals have complex dreams and are able to retain and recall long sequences of events while asleep. Like people, rats go through multiple stages of sleep, from slow-wave sleep to REM sleep. He found that during slow-wave sleep, animals replayed spatial experiences in the same order they were experienced. The latest results of experiments by Wilson and Postdoctoral Fellow David J. Foster show that, following a spatial experience such as running laps on a track, the awake animal replays the memory so precisely that its recorded brain activity corresponds exactly to the places it has just been. However, to the researchers' surprise, the episode is replayed in time-reverse order, with the most recent locations first, proceeding sequentially back to the beginning of the task. Their work may ultimately lead to information useful for treating amnesia or Alzheimer's disease, or helping people to memorize more effectively.

Graduate Interview Weekend: Emily Huske, Gül Dölen and candidate.

photo: H.F. Hall

BCS 40TH ANNIVERSARY SYMPOSIUM

The four symposium speakers: Brenda Milner (Montreal Neurological Institute, McGill University), Karen Ashe (University of Minnesota Medical School), Micheal Stryker (University of California, San Francisco), and Shimon Ullman (Weizmann Institute of Science) with Mriganka Sur.

Students and researchers look on from the balcony

40TH ANNIVERSARY DINNER CELEBRATION

"Our graduate program is 40 years old;
The story is one that deserves to be told.
It all began in the year 1960
When Luke Teuber arrived with a dream that was nifty.
He quickly recruited Professors Nauta and Held;
Together, they created a program that jelled..."

Sue Corkin reads her epic poem chronicling the history of the BCS Graduate Program.

Left top: Grad student skit representing highlights from the 40 year history of the department, (pictured: Talia Konkle, Amy Perfors, Chia–wei Lin, Scott Gorlin and Srini Turaga).
Bottom: Monica Linden and Retsina Meyer pose with living decor during the cocktail reception.
Above: Michael Frank and grad student band play to the room with an original blues parody of life in BCS.
Right: Guests enjoy a lavish dinner.

ALUMNI NEWS

Thomas Breuel, (Ph.D. '92 AI and BCS), is currently a professor of computer science at the Technical University of Kaiserslautern Computer Science Department and head of the Image Understanding and Pattern Recognition (IUPR) research group at the DFKI (German Research Center for Artificial Intelligence). His research group works in the areas of image understanding, document imaging, computer vision, and pattern recognition. Previously, he has worked as a researcher at Xerox PARC, the IBM Almaden Research Center, IDIAP, Switzerland, as well as a consultant to the US Bureau of the Census.

Marc Sommer, (Ph.D. '95 in Systems Neuroscience), went to the NIH as an Intramural Research Training Award Fellow and then as a Research Fellow. In 1994, he left the NIH to become an Assistant Professor in the Department of Neuroscience and the Center for the Neural Basis of Cognition at the University of Pittsburgh, where he is focusing on the role of feedback pathways in the brain during normal behavior and schizophrenia.

Javid Sadr, (PhD '03 in Systems and Computational Neuroscience), is currently a Postdoctoral Fellow at the Vision Sciences Lab at Harvard. In 2004, he received a Certificate of Distinction in Teaching from Harvard. Javid is studying high level vision, including the perception of biological motion, processing of faces, and the perception of objects and faces in systematically degraded images. One of the underlying themes of this work in general may be said to be a quantitative, objective, vision-based approach to person perception: the manner in which (and means by which) we visually process and assess the people we encounter and, conversely, what visual signals we emit, often unintentionally and even unavoidably, through our faces and bodies, that drive others' perceptions and evaluations of us.

D.K Smetters, (Ph.D. '95 in Computational and Experimental Neuroscience), is currently a researcher in the security group in the Computer Science Laboratory, at the Palo Alto Research Center (PARC), formerly part of Xerox. She is working on a variety of projects, primarily focused on the usability of security. This includes technologies for secure sharing of information and usable access control, and the development of new approaches to mobile networking. Before that, she did (among other things) cryptographic design and engineering for a high-security certification authority at a company called CertCo in lower Manhattan; she was a postdoctoral fellow in the laboratories of Rafael Yuste at Columbia University, and Chuck Stevens at the Salk Institute in San Diego. She has also been a classical pianist, "but that was a long time ago."

Karen Wynn, (Ph.D. '90 in Cognitive Science), is currently a professor at Yale. Her research investigates the core mental processes and structures through which we interpret (and impose structure upon) incoming information, and which enable us to reason about and act upon the world. In the Infant Development Lab, she and her students are studying infants and young children as a means to accessing the core architecture of the human mind as it exists prior to the developmental influences of language, culture, education, and extensive experience. They are examining both initial structure—what humans are born with—and also how these initial structures develop over time, with input and experience. Areas of focus include early numerical competence, foundations of social cognition, object cognition, and early social and emotional processes and development.

Angela Yu, (SB '00 in BCS as well as in Computer Science and Mathematics), recently completed her Ph.D. studies at Gatsby Computational Neuroscience Unit, University College London, and has been working at Princeton University (under Jonathan Cohen) as a post-doc since mid-April (still in computational neuroscience).

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