National Aeronautics and Space Administration

NRP Post

A publication of NASA Research Park

Summer 2007

Silicon Valley Center for Robotic Exploration and Space Technologies (CREST) Open House

by Diane Farrar

Dr. Eugene Tu, Ames Director for Exploration Technology, welcomes guests to CREST Open House.

The June 7 Center for Robotic Exploration and Space Technologies (CREST) Open House launched CREST's new student research facility in NASA Research Park, Bldg. 583C. CREST, a regional academic consortium, promotes strategic partnerships among private industry, government agencies and education and research institutions.

"CREST supports collaboration between students at different schools in support of NASA Ames, and major aerospace companies. University collaboration is critical to enable the future success of space exploration," said Dr. Eugene Tu, Ames Director for Exploration Technology, kicking off the event on behalf of the Ames Center Director.

"Stanford, Santa Clara University, and Cal Poly students participated in the GeneSat-1 mission," said Professor Chris Kitts, CREST Director.

"Stanford developed an initial prototype of the spacecraft bus, Cal Poly developed the launch system and Santa Clara students ran the mission operations for GeneSat-1. Several CREST schools are continuing with NASA's new small satellite Pharmasat, scheduled for launch in March 2008," said Kitts. "Also, we just received a grant from the California Space Grant Foundation to involve Ohlone College," he added.

continued on page 6

The Carnegie Mellon Innovations Lab (CMIL)

by Khalid M. Al-Ali, Ph.D.

CMIL identifies, researches, tests, and matures forward-looking ground, air, and space technologies with applications to mobile vehicles. We combine cutting-edge NASA teams and Carnegie Mellon expertise in research, development, operation, and commercialization of micro vehicle platforms and associated technologies, including unmanned aircraft and spacecraft. We have a history of avionics, sensors, and control systems design and simulation research applied toward high profile and widely publicized endeavors – one featured on the History Channel's Modern Marvels: "The Telephone". CMIL is home to MAX, the ground-breaking Intelligent Mobile Rover, and successfully spun-off Senseta, Inc., www.senseta.com, a leader in building the next wave of computing with mobile robotics.

continued on page 8

Technology Showcase Attracts Silicon Valley Companies, Highlights Collaboration

by Kathleen Burton

Approximately 300 Silicon Valley business people, venture capitalists, academics, city leaders, trade group representatives, technology consultants and others attended the Technology Showcase, held in Bldg. 3 on April 24.

"The turnout was excellent, with coverage by News.com and Mercury News, and I really enjoyed meeting with other partners at the NRP," said John Di Mario, Research Engineer at Photozig Inc., in conversation with m2mi's David Maples at the Technology Showcase.

continued on page 4

New NRP Partner Terra Global Capital Collaborating with NASA World Wind Project

by Leslie Durschinger, Principal, Terra Global Capital

Left to right: Thomas Grimm, Leslie Durschinger, Terra Global Capital, and Patrick Hogan, Project Manager, NASA World Wind

Terra Global Capital, LLC, was formed in June 2006 to provide organizations with strategic advice in environmental markets and to act as a general partner for private environmental investment funds. Recently we expanded our business to address climate change by beginning the development of remote sensing based carbon measurement software for reforestation, afforestation, agroforestry, changed agricultural practices and avoided deforestation projects. This technology will bring feasibility to many valuable projects, particularly those in areas of rural poverty.

continued on page 12

Entrepreneurial Space Summit at Space Portal

NRP Space Portal conducted a two day workshop in May.

"One of the topics discussed at the Entrepreneurial Space Summit was how the private sector could use the space station," said Dan Rasky, Director of the Space Portal.

"An important opportunity is via the Commercial Orbital Transportation Services program, designed to provide frequent cheap access to the International Space Station (ISS). Work is underway to establish the ISS as the first national laboratory beyond earth, with exciting potential for commercial biotech as well as government sponsored research and increased demand for access to space," said Rasky.

NRP Welcomes New Tenants

Department of Energy - Special Technologies Lab
Building 18, May 2007

Department of Energy - Special Technologies Lab (STL) is collaborating with the NASA World Wind Team to develop and advance the World Wind geospatial visualization toolset. Being in the NRP allows their developers to work on software modules and develop hardware devices and sensors that will integrate with the software application as it progresses.

Terra Global
Building 19, May 2007

UNCFSP President Aaron Andrews (r) opened a 3 day leadership boot camp for the NASA Science and Technology Institute for Minority Institutions' interns as part of their 10 week summer internship at NASA Ames Research Center.

In Memoriam

We are deeply saddened at the loss of one of our NRP Partners, Sam Addala of e4Xchange, Inc. Sam passed away unexpectedly on Tuesday, April 24th. Sam is remembered by all as a kind, compassionate and joyful person with much enthusiasm for work and life.

"Although I was Sam's NRP manager for only a few months, I personally miss his smiling face. I believe all of us who had the pleasure of knowing Sam miss his gentle nature and quick smile," said Dani Thompson, Sam's NRP account manager.

Sam Addala 1956-2007

Vin Addala, Sam's son, has assumed responsibilities for running e4Xchange, Inc. at NRP. Welcome Vin to NRP.

AWC Supports Great Quake Exercise

NRP Partner Advanced Wireless Communications (AWC) deployed WiMAX services in rapid response time for the center wide Great Quake simulation on May 11. AWC WiMAX provided connectivity from Glenn Research Center's satellite link through N254 Ames Internet Exchange to four predetermined Ames locations. The exercise was a "proof of concept" for future emergency communications requirements.

"The design was successfully tested and may be used, as in center disaster planning, which will provide a huge benefit to the center," said Grace DeLeon, Applied Information Technology.

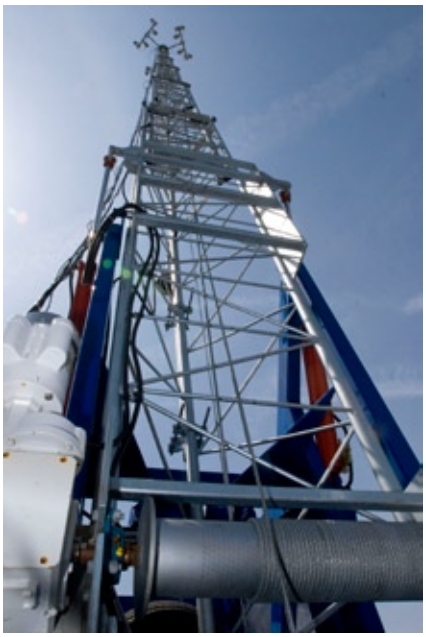


Photo by Cesar Acosta

AWC's mobile tower, the first rapidly deployable WiMAX solution. The AWC response utilized the 802.16d protocol and a customized WiMAX to WI FI system that allowed VOIP (voice over internet protocol) calls to be made within 30 minutes of the simulated disaster.

"Our sincere thanks to Mike, Zach, Dusty and the entire AWC team for providing us a robust and available backhaul network in a professional and timely manner. We are confident that, given a real emergency, AWC's people and technology would perform. We are also greatly impressed by their capabilities and look forward to developing future solutions with them." Network Engineering, NASA Ames Research Center.

"We were up two hours before other networks, providing video and VOIP," said AWC Project Manager Mike Blankenship.

AWC mobile tower

AWC recently completed a successful round of Series A financing. As part of AWC's new foundation, the company brought in Mike Gardner as their new CEO.

As president and CEO of NewlineNoosh, Inc., Mike recapitalized the company, raised nearly $10M in Series A and B financing, acquired a company, and helped capture three major honors, including the Crossroads A-List award. Mike also grew revenue at Blue Pumpkin from $2.8M to $40M in 3 years, taking the enterprise software provider to #5 on the Inc 500 list of fastest-growing private US companies. As EVP of operations for Ungermann-Bass, Mike helped increase the company's LAN market share from $60M to $425M. Following that company's sale to Tandem, he was appointed president and COO of ACC, later acquired by Ericsson for $285M. Earlier in his career Mike directed IBM's largest US sales region with over $1B in revenue and held senior management positions at Hewlett-Packard in marketing enterprise application software.

New AWC CEO Mike Gardner brings more than 30 years of leadership to the company.

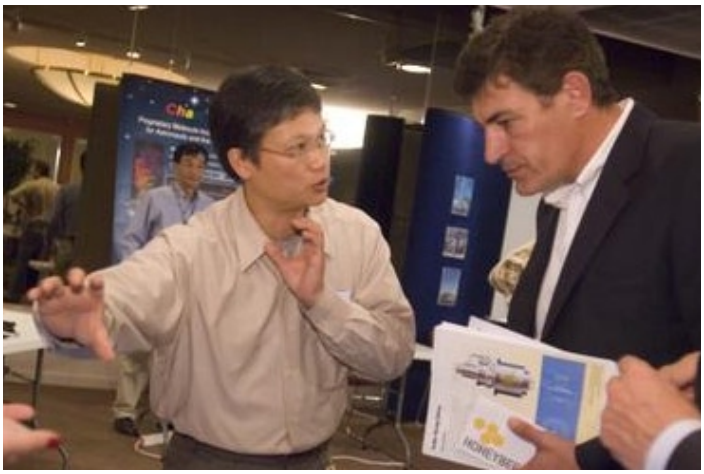
Andrew Gold is now AWC President of Technology and Brian Trumbull President of Products and Services.

Photo by Jim Taylor

Ames employees at flight line during center wide disaster preparation drill on May 11, 2007

Technology Showcase

continued from front page



NRP Partner, Julius Lin, IntelligenTek Corporation

Sponsored by the Ames Partnerships Office, the Technology Showcase provided exposure and networking opportunities for the 30+ NRP presenters and exhibitors.

The Showcase also introduced Silicon Valley businesses to the Ames Partnerships Office, comprising the Space Portal, NASA Research Park, Technology Partnerships and the Small Business Innovation Research Level II Program.

NRP Partner, Mala Mahrotra, Ph.D, Pragati Systems

"The Technology Showcase was an outstanding success bringing together our innovative research and development partners in the NRP to exhibit their cutting-edge new technologies to the investment community, local dignitaries and political leaders, " said Michael Marlaire, Partnerships Office Director at NASA Ames.

"The showcase provided visibility for our partners and let the community know the Partnerships Office is open for new business collaborations," said Mejghan Haider, Chief, NASA Research Park.

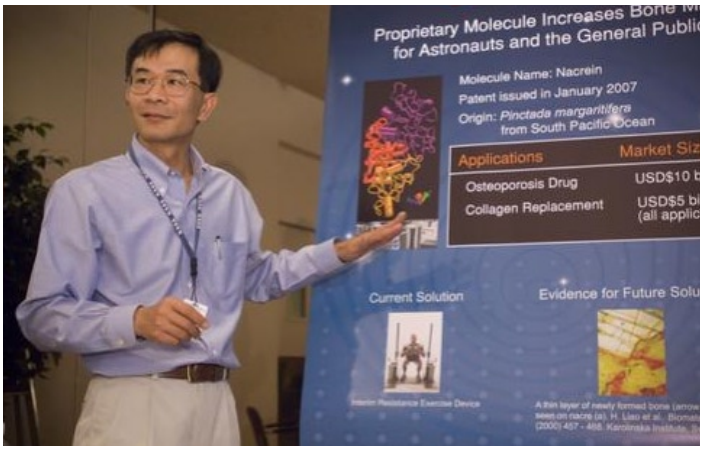
The Technology Showcase kicked off with an opening address by Steve Zornetzer, NASA's Associate Director for Institutions and Research, followed by an overview of the Partnerships Office by Director Michael Marlaire.

Eight NRP partners gave presentations at the Showcase, discussing their core business operations and the benefits of partnering with NASA. They included m2mi Corp., Advanced Wireless Communications (AWC), Apprion Inc., Ecliptic Enterprises Corp., Honeybee Robotics, Tibion and Santa Clara University's CREST (Center for Robotic Exploration and Space Technology) program. Terry Fong of Ames also spoke about Google/NASA collaborations, with an emphasis on their joint disaster response project.

Exhibitors included, m2mi, AWC, Ecliptic, Apprion, Honeybee, SCU, SCU CREST Program, IntelligenTek, Inovamar, Pragati Synergetic Research, Inc., Gary Air, Aramira/Jumping Beans, Carnegie-Mellon University West, UC Santa Cruz, Changene, Photozig Inc., Planners Collaborative, Telebrowse Inc., Intelligent Inference Systems Corp., the Mars Institute, the United Negro College Funds Special Programs Corp., the Moffett Field Historical Society, and Western Disaster Center. There were also exhibits by the NRP, Tech Partnerships and SBIR Office.

"It was well worth the trip," (up from Pasadena), said NRP Partner Rex Ridenoure, CEO Ecliptic Inc.

The Showcase received wide local media coverage, with several partners interviewed on Channels 2 and 7, on CNET and in an April 25th article in the San Jose Mercury News.



NRP Partner, Frank Chang, Changene

Right: NRP Partner, Pascal Lee, Mars Institute

The Showcase received "positive reviews" from many of the partners who took part.

"We definitely got some good exposure, especially with the piece that ran on CNET," said IntelligenTek marketing director Jennifer Yu.

"The TV coverage was fantastic, I have posted it to our website," said Geoff Brown, CEO of m2mi.

"A lot of work went into the event and it showed," said Pascal Lee, CEO and founder of the Mars Institute. "The Tech Showcase was a great success and much appreciated by all partners and visitors I spoke with."

"We had a blast," said Andrew Gold, founder and president of technology at AWC.

"Since the first Tech Showcase was such a success, we are planning to hold another Technology Showcase, probably in Spring 2008," Haider said.

Go to: http://www.researchpark.arc.nasa.gov for Technology Showcase images from Photozig and NASA photographers.

Moffett Field History Museum

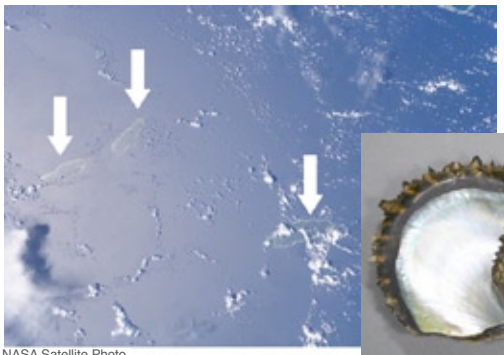
He Was a Bold Man Who First Ate an Oyster

by NRP Staff

In the search for biomaterial to elevate bone mass density, scientists verified the safety of using shell of pearl oyster as a source of calcium as well as a biomaterial for bone healing. Scientists at Changene, Stanford University, Harvard Medical School and the University of Hawaii sampled shells of black pearl oyster (Pinctada margaritifera) from remote atolls in the South Pacific Ocean for its elemental contents. The regulated hazardous elements are under safety concentrations. The study is published in June's Journal of Food Chemistry.

NRP's Frank Chang, principle investigator at Changene, said "We sampled black oyster shells, measured the trace metal concentrations, and confirmed the safety for human consumption against the safety standards determined by the US FDA, European Union, and United Nations."

Recent studies demonstrated bone healing capability of the organic substances prepared from pearl oyster shells when injected into bone injury sites on sheep legs.



NASA Satellite Photo

Scientists collected pearl oysters from Tuamotu Archipelagos of Tahiti, a remote location with few modern human activities.

Polynesian pearl shell

Dr. Tianhua Niu, assistant professor at Harvard Medical School, said "the organic substances prepared from the shells potentially could be an osteogenic agent; and the shell powder could be used as a calcium supplementation. Our data and current regulatory standards indicate that both applications stay clear of major health concerns caused by trace element contents."

Dr. Maria Haws at the Univ. of Hawaii Sea Grant College said "Our study lays a foundation for extending the commercial value for pearl oyster. With current practices, shells of pearl oyster have little economic value once the pearl is picked from the shell. The potential application of shells for human consumption enables pearl farms, mostly located in economical challenged regions, to generate extra revenue. Countries in the South Pacific Ocean benefit from this extended application."

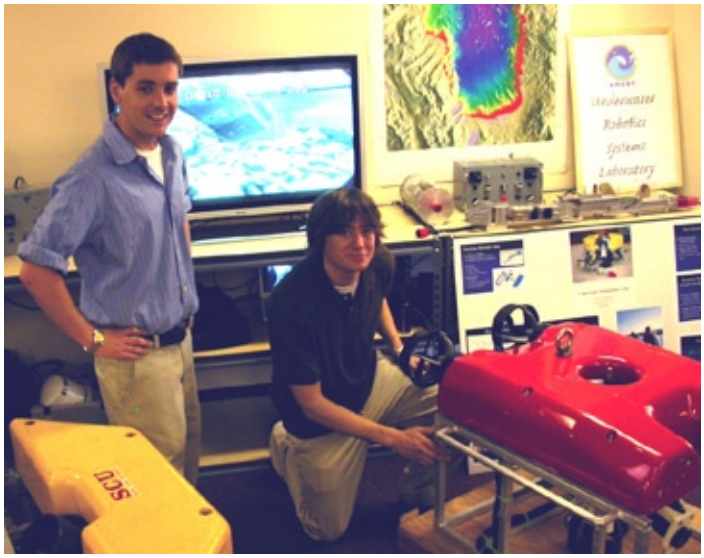
CREST Open House

continued from front page

"We began student work with small spacecraft four years ago based on consultation with Stanford," said Ames' Deputy Chief, Small Spacecraft Division, Dr. John Hines. "Three years later we launched GeneSat-1, the first NASA mission with ground operations designed and operated by students. GeneSat-1 supported up to 40 students from 6 universities."

Mike Rasay used advanced diagnostic techniques to design operations for GeneSat-1 as a platform for his Master's Degree research at SCU.

"We now have a cohesive 70 member team, ages 17 - 70 years, from various disciplines and organizations. In a very short time we have evolved from novelty student projects into real science for multiple forums. CREST is a model for the future -- to bring in the next generation. CREST has classrooms for theoretical and conceptual training, laboratories for experimentation and real world applications that will have an impact," said Hines.



Rick Conrey, SCU-EE and Seamus Agnew SCU-ME with their underwater robot, which recently found evidence of tsunami waves in Lake Tahoe.

The CREST student research facility at NASA Research Park hosts:

- Two classrooms for the Lockheed Martin Small Satellite Design Course with Professor Kitts of Santa Clara University. Future plans include an Entrepreneurial Space Certificate program through Santa Clara University

Additional facilities are:

- Mechatronics Laboratory
- Robotics System Laboratory
- Small Spacecraft Assembly Laboratory
- Student Run Mission Operations Center
- Marine Robotics Laboratory
- Multi-Robot Systems Laboratory
- Integrated Design Network center
- Office Spaces
- Large Atrium area for seminars and project reviews

Partner projects showcased included live robotic demonstrations, student-led tours of the Small Spacecraft Assembly lab and the Mission Ops center. CREST is a consortium of universities interested in developing student-centered satellite and robotic systems for supporting hands-on engineering education, advanced technology demonstration, and scientific discovery. These systems are typically low-cost and capable of supporting high-risk experimental studies. CREST members include Santa Clara University, Stanford University, San Jose State University, California Polytechnic State University San Luis Obispo, and new member Ohlone College. Additional non-local partners include Northeastern University, Washington University in St. Louis, and Montana State University.

Will Sanicola is a SCU engineering freshman and a CREST intern with Professor Kitts' autonomous aircraft program.

CREST partners have expertise ranging from small satellites to underwater robotic systems and routinely conduct world-class experiments and research with a wide variety of governmental (NSF, NASA, NOAA, DoD, USGS, etc.), industrial (Lockheed Martin Corp., CSA Engineering, etc.), and non-profit (Space Grant, Monterey Bay Aquarium Research Institute, Institute of Electrical and Electronics Engineers, etc.) partners.

Casey Kute and Matt Ambaum, SCU juniors in Mechanical Engineering exhibited Roverwerx at CREST Open House and the USGS.

CREST Students & Western Disaster Center at USGS

On June 5 NRP Partner Western Disaster Center, with staff from the SCU Robotics Systems Laboratory (SCU RSL) and NRP CREST, provided a technology demonstration for the California Post Earthquake Information Clearinghouse. This demo was held at the US Geological Survey facility in Menlo Park during a regular quarterly meeting of the Clearinghouse.

SCU RSL/CREST students Casey Kute and Matt Ambaum demonstrated Roverwerx. SCU RSL/CREST student Will Sanicola demonstrated a balloon/gondola robotic imaging system. SCU RSL/CREST is working with the Western Disaster Center to develop imaging and inspection capabilities using the rover and the balloon/gondola imaging system.

Following a major earthquake in California, the California Post Earthquake Information Clearinghouse will systematize the collection of critical information from field investigations, including focused time sensitive science and engineering data associated with earthquake faulting, and engineering data associated with building, bridge and roadway collapse.

Rich Davies, the Executive Director of the Western Disaster Center, is the chair of the Clearinghouse Overflight subcommittee, the component of the Clearinghouse responsible for the collection of imagery and remote sensing data for the Clearinghouse. Other members of the Clearinghouse include the US Geological Survey, the California Geological Survey, the California Governors Office of Emergency Services, the Federal Emergency Management Agency and the Earthquake Engineering Research Institute.

Apprion Names VP of World Wide Sales

Moffett Field, Calif., May 07, 2007 (BUSINESS WIRE)

Apprion, the pioneer of the industrial wireless application networks for manufacturers, today named Michael BeDell vice president of worldwide sales, responsible for expanding opportunities in process manufacturing markets, including oil, gas, chemicals, and energy. BeDell's 25 years of industry expertise consists of extensive experience delivering enterprise managed services including on-demand wireless solutions.

Michael BeDell

m2mi Update

by Geoff Brown, CEO and Founder of m2mi

Machine-to-Machine Intelligence (m2mi) Corporation, an emerging innovator, continues to strengthen its relationship with NASA Ames and the commercial community at large. m2mi spoke at two key NASA Space Portal community events as a commercial space partner, supplier and consumer. m2mi embraced the Silicon Valley Disaster Recovery community by hiring Silicon Valley Alumni, Rick Ellinger as Chief Strategy Officer. Hurricane Katrina is our use-case for how our technology should keep systems going under catastrophic circumstances. Rick brings a wealth of relevant experience, and we both believe that kindness is a hallmark of a truly ambitious company.

Enroll at CMU West

It's not too late to apply to Carnegie Mellon West! We are still accepting applications for the Fall 2007 enrollment. Carnegie Mellon's west coast campus, located at Building 23 in the NASA Research Park, offers two graduate degrees: MS in Software Engineering and MS in Software Management. Both part-time programs are designed for the working professional, and can be completed in two years. At Carnegie Mellon West, we provide our students with technical expertise within a business context. We are dedicated to educating our students in the business of software. Apply today at: http://west.cmu.edu/apply

For questions, please contact Sylvia Leong at admissions@west.cmu.edu or 650/335-2808.

CMIL

continued from front page

Khalid Al-Al holds a Ph.D. in Mechanical and Electrical Engineering from the Univ of CA at Berkeley. Inspired by an intimate childhood conversation with Apollo Astronaut Alan Shepard, Al-Ali lead the construction of ATLAS payloads on 1993 and 1994 STS missions. Now CMU Senior Fellow, Director of Robotics and CMIL Director, Al-Ali leads efforts to create compact, highly capable mobile vehicles covering ground, air and space operations.

Carnegie Mellon Robotics lab was founded with humble beginnings in 2003 at Carnegie Mellon West in NASA Research Park. Working with Ames Computational Sciences Division groups within Code TI, I was building bridges between Carnegie Mellon and NASA communities. The lab was my "field of dreams." I had no outside funding and no sponsor to build this lab. I said "we are just going to do it. Let us start small, think big, and grow rapidly," and with the support of Dr. Raj Reddy and CMU, converted my office in Bldg. 23 to lab space for my team. The lab grew rapidly into larger Offices supported by NASA funded projects, and in 2005 we began occupying most of Bldg. 23A. We renamed the lab the Carnegie Mellon Innovations Lab, given our variety of work and diversity of expertise. CMIL pays homage to Thomas Edison's Invention Factory, and like a "mill", we work and produce all the time.

Our lab operates like a think tank for low cost, high performance small, unmanned vehicles –spacecraft, landers, rovers and aerial vehicles. We have six research faculty with world-class expertise in five diverse areas: mobile robotics, dynamics and control systems, evolvable systems, automated robotic construction, and high performance software research and development.

Dr. Jason Lohn, Senior Research Scientist at CMU, formerly at Stanford, Ames and Google, designed award winning antennas that flew on recent NASA spacecraft. Dr. A. Scott Howe, with Ph.D.s in architecture and mechanical engineering, specializes in construction robotics for planetary surface and orbital space environments. Dr. Vadim Kotov's expertise is providing a broad range of solutions to high-performance and high-dependability system problems. Consulting Research Scientist Dr. Alan Federman's current interests are making domestic robots truly useful, especially for the disabled and elderly, open source software tools for scientific visualization and machine-human interaction. From 1995-2005 he supported the NASA Learning Technologies and Robotics Education Projects.

We built our first product, MAX, an autonomous robotic test bed, from the ground up to market, with 30 students and no outside money. Our customer base asked for a low cost "reliable, rugged, portable, and extendible rover." MAX, a commercial research and educational micro rover, has a 4-wheel drive, 4-wheel steer (double Ackerman) high clearance agile durable chassis outfitted with sensors and electronics to support intelligent teleoperation research. MAX is an affordable, versatile, intelligent robot platform, filling the market niche between cheap, low-fidelity hobby robot kits and the high cost research robot platforms. No compact research rover currently on the market offers the same high-resolution stereo vision capabilities, range of sensor modalities, mobility, onboard computing power and mechanical durability at a comparable price. Most of MAX components are standard off-the-shelf products, keeping MAX user friendly, and a plug-and-play, easily repairable rover. We built several MAX models. The Ames research version is one of the most densely equipped rovers available, with two laser range finders, high-speed wireless communication, differential GPS, sonar rangefinders and a sophisticated Inertial Navigation System (INS) driven by high power brushless motors.

Four processors - Pentium M, FPGA, and twin DSP's - provide computing power. Now successfully spun off into a company, Senseta, Inc., we think MAX, the size of a toaster oven, is the fourth PC form -- a laptop on wheels, after the desktop, notebook and tablet.

MAX 5.0J and MAX 5.0A at the NASA Ames Mars Yard

The infirm, the elderly, physically challenged, or those living alone are potential MAX users. The rover, as a companion, could keep an audio/video record of each day. Alzheimer patients could replay a record of their day to help them find things or remember what happened earlier. Owners could tell the GPS equipped rover "take me to the corner grocery" and MAX would lead the way.

Other research at CMIL includes the Polymorphic Control Systems project, a NASA Ames funded initiative to extend the concepts of the Ames developed distributed plug-and-play avionics, to examine its effects on control system design and capabilities for adaptive and fault-tolerant control. Senior Research Engineer Corey Ippollito serves as the lead engineer on the Polymorphic Control Systems and Exploration Aerial Vehicles projects. Corey is a member of the Adaptive Controls and Evolvable Systems Group at Ames whose work includes the NASA Haughton-Mars Project.

This research investigates possibilities for exploiting the distributed control and avionics network for resilience and adaptability in situations beyond the capabilities of current adaptive algorithms, including regimes where critical failures or damage would bring complete mission failure with the potential loss of the vehicle, payload or lives. The project leverages mature distributed software architectures used by NASA on UAVs with CMIL's proven MAX rover platforms. These architectures run on the Pentium-M class processor onboard the MAX platform providing guidance, navigation and control.

Researchers and Spaceward Bound educators in Chile's Atacama Desert

CMIL also supports initiatives that combine science, technology, research, and education. In June 2007 CMIL received a NASA Group Achievement Award for the Spaceward Bound 2006 Expedition: Chile, a collaboration between CMIL, Ames' scientist Dr. Chris McKay's research team and Ames' Education Division's Spaceward Bound education venture.

The expedition to Chile's Atacama Desert performed cutting-edge field robotics research, field testing a MAX variant to determine sustainability of compact rovers in harsh temperature and weather conditions.

The educators and CMIL accompanied Dr. Chris McKay's research team, while select members of the Girl Scout robotic team, Space Cookies, had the opportunity to control MAX from Ames. MAX was teleoperated over a Ku band satellite from Ames Main Mission Control (MCC) facility, with adjustable communication latencies.

MAX ran with NASA Ames' Reflection control system architecture in day and nighttime conditions, under wide ranging temperature variations (30˚ - 100˚F), and over dusty, rocky terrains. Ames' Director Pete Worden teleoperated MAX from a NASA software enabled ground station at the MCC using both available modes of operation: Intelligent Waypoint Navigation and Direct Rover Control.

MAX prototypes in the Atacama Desert, the driest place on Earth. Virtually sterile, the desert serves as an analog for Mars' environment.

In May 2007 Dr. McKay's team field-tested MAX in California's Mojave Desert, after one hour of CMIL training. "MAX is the Apple II of rovers," said McKay, noting MAX's ease of use and versatility.

We think CMIL exemplifies NRP goals -- we are a science and technology institution, we cross-fertilize through proximity, we are attracting "feeder fish" and we are spinning off companies. We have formal collaborations with other academic institutes, government agencies and industry. We are proud of what we do. Visit us in Bldg. 23A behind the CMU West main building, or for more info contact me: Khalid M. Al-Ali, Ph.D., Senior

Ames Science Field Station with satellite communication in the Atacama

Fellow and Director of Robotics and CMIL, West Coast Campus, CMU, Bldg. 23 alali@cmu.edu, http://cmil.west.cmu.edu Carnegie Mellon West, a top tier academic institution at NASA Research Park, is home to CMIL, a non-profit lab co-founded by Raj Reddy. Reddy also co-founded Carnegie Mellon West, the Robotics Institute at the Pittsburgh campus, and was Co-Chair of the US President's IT Advisory Committee.

UCSC Advanced Studies Lab Proposal Solicitation

The Advanced Studies Laboratories (ASL), an emerging partnership between NASA ARC and UC Santa Cruz is accepting formal proposals for ASL Affiliation.

ASL's focus is the shared use of a facility on the Ames campus, Bldg. N239. This building has a mix of laboratory and office space with equipment and services typical for supporting research in biology, chemistry, and engineering. In addition, there is a library, glassware/prep kitchen, large meeting room and several smaller conference rooms. A central 'Commons' area is maintained by ASL that supports short-term projects and provides a central presentation and collaboration space for ASL Affiliates. ASL invites contact from potential Affiliates whose focus matches our goals and facilities. Because ASL resides on the NASA Ames campus, and maintains shared use of N239, prospective Affiliates should be prepared to operate within established guidelines for safety, security, and environmental protection. Existing permits and procedures govern N239 occupants.

Interested parties are invited to contact ASL: Kami.helmsworth@adm.ucsc.edu 650-528-4030 ext. 176

IISc Global Conference

University of California, Santa Cruz - Silicon Valley Center in partnership with The Indian Institute of Science held the IISc Global Conference 2007 Friday June 22 - Sunday June 24 in Santa Clara.

The conference provided an excellent opportunity to network with the best and brightest in industry, academia, and policy makers. The event was a platform for interaction amongst Institute, Alumni, Industry and Academia to build long-term partnerships to address challenges of global importance such as Knowledge Sciences and Services, Energy, Biotechnology & Health Care, Nanotechnology, Aerospace/Auto, and Communication & Information Technology. The intent was to build sustainable Indo-US partnerships and teams across industry and academia, to enable participants to be world leaders and capture market share in high value added segments of research, development, IT, and operations.

The Institute developed the Science and Technology platform for India for 100 years. Institute Directors have been Nobel Laureates, Secretaries of Space, and Scientific Advisors to the Prime Minister. More recently, the Institute developed the SID to work with industry in creating and transferring technology. Success stories include development of commercial grade hepatitis vaccine, high profile spin-offs such as Strand Genomics, and joint multi-million dollar projects with Boeing, Stanford University, Caltech, UIUC, CMU and Cambridge University. The conference showcased these successes, and allowed potential new partners to interact with and form partnerships with distinguished faculty, alumni, and friends of the Institute.

Attendees included:

- Mr. James C. Morgan, Chairman, Applied Materials
- Mr. Lakshmi Narayanan, Vice Chairman, Cognizant Technology Solutions (CTS)
- Mr. S. Ramadorai, CEO, Tata Consultancy Services
- Dr. R. Chidambaram, Principal Scientific Advisor to the Government of India
- Mr. Arno Penzias, Partner, NEA, Nobel Laureate
- Prof. Jared Cohen, President, CM
- Prof. Robert Birgeneau, Chancellor, University of California at Berkeley
- Prof. P. Balaram, Director, IISc
- Prof. N. Balakrishnan, Associate Director, IISc
- Prof. S. Mohan, Former Chairman SID, Chairman, Alumni Cell IISc

For more information on the event visit http://conference.iiscaana.org

UCSC Summer Courses

The University of California Santa Cruz Silicon Valley Center in NRP Bldg. 19 will offer classes throughout the summer months. Visit UC's Summer Sessions website at http://summer.ucsc.edu/silicon
For course descriptions visit http://summer.ucsc.edu/courses. Register at my.ucsc.edu

Dates	Course ID	Class Description	Days/ Times
(6/25 - 8/17)	CMPE 16050 ID #71315	Applied Discrete Mathematics	TTh 1:00 - 12:25
(6/25 - 8/17)	CMPE 101-50 ID #71687	Algorithms & Abstract Data Types	TTh 2:00 - 4:25
(6/25 - 7/27)	ECON 100-A-50 ID #71688	Interm Microeconomics	TTh 9:00 - 12:30
(6/25 - 7/27)	ENVS 172-50 ID # 71690	Science, Policy & the Environment	TTh 5:00 - 8:30
(7/30 - 8/31)	LING 164-50 ID #71702	Linguistics for Engineers	TWTh 2:00 - 4:30
(7/30 - 8/31)	PSYC 170-50 ID #71693	Abnormal Psychology	MW 4:00 - 7:30
(7/30 - 8/31)	ECON 100B-50 ID #71689	Interm Macroeconomics	TTh 9:00 - 12:30

UC SANTA CRUZ

UCSC Fall Courses

Selected UCSC School of Engineering classes in Technology and Information Management and Computer Science/ Computer Engineering courses are offered at the Silicon Valley Center. Some courses are telecast back to UCSC and can be attended by on-campus students at the same time and day of class. Classes at the Silicon Valley Center range from an hour and a half to three hours in length and meet one or two days per week. Topics include: addressing the use of information systems within a business enterprise, weekly talks by leading industry practitioners and university researchers to provide in-depth exposure to the management of technology, and current research on a special topic in information systems and technology management.

The following is a list of Fall 2008 courses being offered at NASA Research Park:

Course ID	Class Description	Days	Times	Instructor
ISM 205-50	Management of Technology I	W	6:00 – 9:30	Desa
ISM 209-50*	Knowledge Services & Data Analytics	TTh	6:00 – 9:30	Akella
TBD	Incisive Leadership & Innovation	M	6:00 – 9:00	Buckholtz
TBD	Strategic IT Investment Management	M	6:00 – 9;00	Buonanno
CMPE 202-50*	Computer Architecture	TTh	6:00 – 7:45	TBD
CMPE 252A-50*	Computer Networks	MW	5:00 – 6:45	TBD

* Telecast course

For the latest Fall, Winter, or Spring course listings or to enroll in these courses, go to the UC Santa Cruz Extension website at www.ucsc-extension.edu and search on either the course name or course number.
All classes are held at NASA Research Park on the second floor of building 19.
For more information contact Connie Miley @ 650.528.4030 ext 101 or via email at connie.miley@adm.ucsc.edu

Terra Global

continued from page 2

Our carbon measurement technology will consist of software automating the end-to-end process of creating and monitoring land-based carbon assets. The central architecture will be built upon the NASA World Wind global visualization system. Significant technical contributions to the core system -tracking and resolution, as well as new features and source code modifications, will be supported by NASA, NOAA, and USGS. The software will provide project developers with a more efficient way to create carbon credits and monitor them on an on-going basis.

Advanced carbon models will access terabytes of high resolution remote imagery, elevation models, real-time weather data, live aerial video feeds and ground data to support the creation and tracking of carbon assets from land use projects in regulated and voluntary carbon markets. The system will manage all processes required for establishing baselines and creating ex-ante projections of carbon offsets. It will support the on-going monitoring of carbon assets by developing monitoring methods and providing the tools to generate frequent measurements of the actual carbon sequestered.

The web-based highly-interactive geographical front-end allows project developers to efficiently enter data and track projects. The system will also generate basic metrics to track the co-benefits of these projects such as improved water quality, poverty reduction, enhanced biodiversity, and reduced soil erosion.

Through the use of remote sensing techniques and efficient methods of collecting ground data, the software will bring scale to the marketplace. It will support highly accurate and frequent measurements that can be used in the global carbon markets.

"The detailed and cumulative data repository and analysis that Terra Global Capital provides will greatly advance our understanding of what carbon sequestration is all about while encouraging human behavior to effect positive change on a global scale. NASA World Wind open source visualization technology was designed to deliver this very kind of information intelligence." Patrick Hogan, Project Manager, NASA World Wind.

By using the NASA World Wind platform, we are able to provide our project developers with powerful tools to access valuable information on their projects. This allows them to manage projects on a real time basis, maximizing the positive impact on climate, water quality, biodiversity, and poverty reduction.

Upcoming Events

3rd Annual NRP Summer Picnic
July 12th • 2007

When: 11.30am - 1pm
Where: Chase Park • NASA Ames
Purchase Tickets by July 9th by contacting Donna
dbarrese@mail.arc.nasa.gov or 650-604-1286

September 19 (Tentative)
NRP Exploration Lecture Series presents Commercialization of Space, 7p.m., Eagle Room, Bldg. 943.

NRP Post

Editor . . . . . .Diane Farrar
Layout and Design . . . . . Brandy Dettmer

NRP Post deadlines
Please submit articles to nrppost@mail.arc.nasa.gov on or before November 15, 2007 for the next issue.

Phone: (650) 604-2NRP
Email: researchpark@mail.arc.nasa.gov
Website: www.researchpark.arc.nasa.gov