



NASA Selects Made In Space Proposal for Next Generation Space Manufacturing Program

By Brad Kohlenberg
 19th November 2015

NASA's Space Technology Mission Directorate announced its selection of the Made In Space project proposal for utilizing public-private partnerships to advance Tipping Point Technologies. The NASA funded project, designated "Archinaut," is designed to develop the necessary technologies and subsystems which will enable the first additive manufacturing, aggregation, and assembly of large and complex systems in space without astronaut extravehicular activity.

"Archinaut is being designed from the ground up to be a truly cross-cutting technology, providing entirely new space capabilities for NASA and other government missions as well as both pre-existing commercial satellite manufacturers and emerging commercial space platforms," said Andrew Rush, President of Made In Space.

To capitalize on this NASA provided opportunity, Made In Space is teaming up with Northrop Grumman and Oceaneer-

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Made In Space to Send 3D Printer Up to International Space Station

By Jonathan Bloom
 19th February 2016, MOFFETT FIELD, Calif. (KGO)



left to right - Andrew Rush, President, Made In Space; Stephen Jurczyk, NASA Associate Administrator for Space Technology Mission Directorate; Dr. Eugene Tu, Ames Center Director; Howard Eller, Advanced Concepts Chief Architect, Northrop Grumman

Friday night the International Space Station passed over the Bay Area. NASA says it would only be visible for about five minutes, starting at 6:56 p.m. Next month, a new 3D printer will be sent up to the ISS. Soon, a space shuttle launch will be one of two ways to put something in space.

"You either take this satellite to a launch pad and put it on a rocket or you come to this office and give us the digital file, and we will digitally launch your satellite to our 3D printer and print it out," Made In Space chief technology officer Jason Dunn said. Called the additive manufacturing facility, it heads to the space station next month. "The way we've developed 3D printers to work in zero gravity is we actually get to take the printers into zero gravity ourselves," Dunn said.

Bay Area startup Made In Space sent up a test unit that's made working tools. Now, there's a wish list. "Back scratchers... it turns out you're in space for a long time and you just want to scratch your back," Dunn said. And for NASA scientists, it means fewer delays, if an experiment breaks.

"Being able to manufacture that now, rather than wait for the next part to come up on the next available flight to station," Eugene Tu from the NASA Ames Research Center said. But building things on board the space station is barely even the beginning. The goal is a device that looks less like a printer and more like a spacecraft.

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NRP Welcomes

American Aerospace Technologies, Inc. (AATI)

Bldg. 156, Rooms 124-128
Commencement Date: 2/1/16



AATI flies a fleet of long endurance unmanned aerial vehicles with government, scientific, environmental and commercial payloads, including fire mitigation and oil and gas pipeline surveillance. AATI is establishing a west coast operation of their business, based at the NRP.

Higher Ground LLC

Bldg. 156, Rooms 107 & 116
Commencement Date: 2/15/16



Higher Ground LLC has developed a very inexpensive means of communicating with geosynchronous satellites. They call this Direct-to-Geo™ or D2G™. It has never been done before. Their D2G radio provides very inexpensive, low data rate communications to/ from many of the 180 (or so) satellites which are in geo orbit. Our first application of D2G technology will be in a consumer product called the SatPaq™. The SatPaq has the D2G radio, battery and antenna embedded in the protective case of a standard smartphone. You simply take the case off of your smartphone and replace it with a SatPaq. The SatPaq addresses the number one frustration that we all have with our smartphones. They are of little value when consumers go outside of cell phone range. This happens often when we do recreation like camping, hiking, fishing.... The SatPaq allows texting and email from your phone when you are outside of the cell network.

Appointment of New NASA Research Park Director

Ms. Janice Fried, formerly Director of the Office of Human Capital, is reassigned to the position of Director of the NASA Research Park (NRP). This appointment provides executive leadership to the NRP at a time when its importance to the future of Ames is growing. Ms. Fried and the NRP staff will be responsible for building strategic partnerships in the NRP, guiding its development to complement the Ames campus and applying our authorities to maximum advantage for the Center and the Agency.

Ms. Fried was appointed to the Senior Executive Service in 2008 and has been serving as the Director of the Office of Human Capital since that time. She served as the NASA Ames Research Center's Deputy Chief Counsel and as an attorney for both NASA Ames Research Center and NASA Headquarters for over eight years. During 2007, Ms. Fried served as the Acting Deputy Assistant Administrator for Human Capital Management at NASA Headquarters, and represented NASA as the Deputy Chief Human Capital Officer. Her educational background includes a Masters of Law degree in Environmental Law from the George Washington University Law School, a J.D. from Whittier Law School, and a Bachelor's degree in History from the University of California, Los Angeles.



Verdigris Announces Newest Addition to the Building Intelligence Platform: Energy Tracker!

By: Thomas Chung
11th August 2015

NASA Research Partner Verdigris has recently launched a new App called Energy Tracker. This App was born out of the frustrations of people who work in building operations. Facilities managers and engineers walk around their buildings daily looking for equipment problems. But many common problems are invisible to the naked eye, developing silently until it's too late. Verdigris Energy Tracker delivers real-time notifications to building managers to address these problems directly.

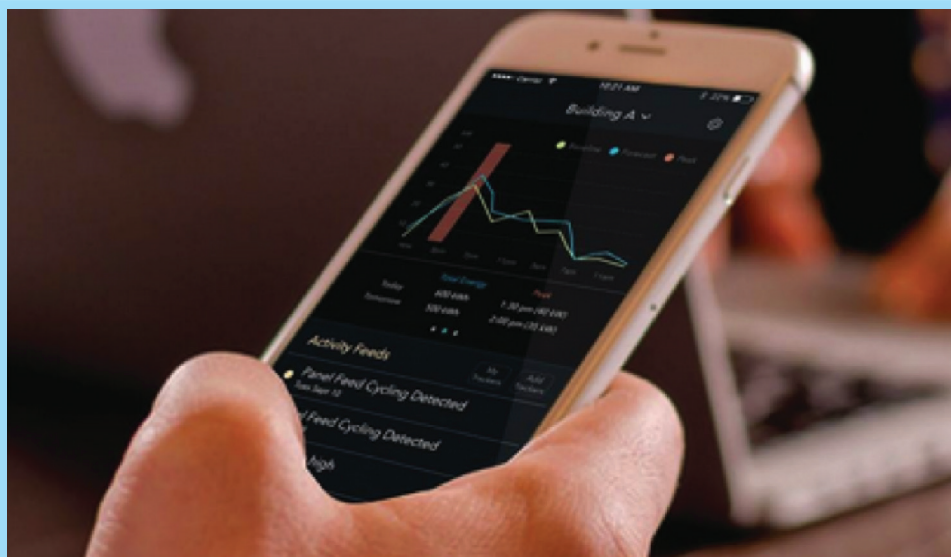
The Verdigris Energy Tracker App notifies users about energy waste and equipment faults before they affect operations. Tracker uses Setpoints, which users customize to their operational needs. These include energy spend in a region of the building, like lighting, or power thresholds on a single device, like a pump. When issues arise, Energy Tracker delivers email or SMS alerts to point building operators in the right direction.

Recently, Verdigris released Auto Setpoint Tracker, using machine learning to choose these setpoints automatically. In their user research, many chief engineers said that they didn't always know what the right setpoint level was. So Verdigris responded by creating an algorithm that would identify this "building drift" phenomenon on its own.

Energy Tracker Accurately Predicts Future Energy Use

Managing peak demand is one of the most difficult problems facing building owners. It's also one of the biggest challenges facing power grid operators. Identifying ways to reduce power consumption and improve sustainability is at the core of Verdigris' Space Act Agreement.

Verdigris integrated its machine learning engine into Energy Tracker for just this reason. Energy Tracker can deliver highly accurate day-ahead forecasts of energy use for building engineers.



The algorithms normalize this forecast to past energy use, plus predicted weather, temperature, day of week and day of year. Soon, it will also incorporate humidity, angle of sun and cloud cover for solar radiation, and building occupancy data.

Verdigris differentiates by also identifying the specific devices expected to contribute to energy peaks. Energy Tracker goes a step further by notifying engineers where they can most effectively shift and shed energy loads.



Energy Tracker supplements Verdigris' building intelligence platform, developed in part at the NASA AMES Sustainability Base. The platform's smart sensors are already finding equipment problems in the real world. At the W Hotel San Francisco, Verdigris identified a broken dishwasher well ahead of the normal maintenance cycle. This saved the hotel from a potential costly breakdown of their \$30,000 device.

Energy Tracker was designed to give building managers better insight into their daily operations. It can help management make smarter decisions that improve energy efficiency, prevent problems, and reduce occupant complaints. These operational efficiencies translate directly to a company's bottom line. And by reducing peak demand at customer sites, Verdigris hopes it will pay dividends to the environment as well.

Thomas Chung is a co-founder and product manager at Verdigris.

<http://verdigris.co/tracker-app>

Take Me Out to the Ballgame

By: K. Burton
Moffett Field, Feb. 2016

Dr. Rabindra Mehta, chief of the Experimental Aero-Physics (AOX) Branch, held a crowd of adults, teens, families and kids spellbound at the NRP Exploration Lecture, "NASA, Aerodynamics and Sports Balls," on Jan. 7 in the Bldg. 3 Auditorium.

He broke the ice with the audience early on by throwing a football down the middle aisle of seats to an athletic teenager, who threw a long, smooth pass back to Mehta.

His enthusiasm was apparent as he paced the stage and gave a range of 'insider' anecdotes and hard data about cricket balls, soccer balls, baseballs, footballs, tennis balls – even wiffle balls.

"Every sports ball has its own unique aerodynamic characteristics," Mehta said.

"Big picture," he said is "It's all about aerodynamics – the holes, shapes and the rough and smooth sides," of the different types of balls.

For example, the cricket ball (Mehta's favorite) has what is called 'asymmetric separation' because of its angled seam. As a result, there is more turbulence on one side than on the other. "During a

throw, the cricket ball's angle is based on the seam orientation, and the velocity is in inverse relationship to the pressure," he said.

He segued to America's favorite game –

crowd-pleasing fastball: "Fastball pitches typically travel 85-100 mph, and often have a wicked backspin." (This makes them notoriously hard to hit.)

He dove into what he called baseball "myth busters" and put several to rest. For example: "Is a rising baseball fastball possible?", he asked the audience. And he then explained technically why the answer was clearly "No."

And he discussed the fine points of 'spin versus lift' on a four seamer (baseball) vs a two seamer baseball. (Hint: the four seamer has more lift since it has a rougher surface than the two seamer.)

With a nod to SuperBowl 2016 at Levi Stadium (which was still ahead on February 7) Mehta touched on football aerodynamics. Among his many

interesting facts, he noted that throwing a football straight on the axis makes the ball go further. And—the effect of wobbling pass is that wobble aerodynamic causes the football to be a 'lame duck'.

During the Q&A which followed, audience members asked questions on everything from laminar flow over a VW Beetle ("The VW might get some improvement on its' speed," Mehta said.) to tennis ball speed - ("A tennis ball becomes faster as you use it because the felt wears off.") and the effects of altitude on soccer in Brazil. ("Less drag.")

After the lecture children teens and adults swarmed Dr. Mehta like a rock star, and lined up for pictures with him and the array of sports balls from all over the world that he'd brought. The audience voted on which youngsters asked the best questions, and the top winners received – guess what? – a sports ball!

Mehta graduated from the University of London with a B.Sc. in Aeronautical Engineering (Queen Mary College, 1975) and Ph.D. in Aeronautics (Imperial College, 1978).

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NRP Deputy Director Meighan Haider presents plaque to Dr. Rabi Mehta

baseball. "A baseball pitch moves toward the rough side at lower speeds," he said, discussing the smooth vs seam side of a baseball during a pitch.

Mehta also showed videos of difficult to hit spinning pitches such as gyro balls, knuckleballs and curveballs. "Curveball aerodynamics are due to more deflection later in flight," he noted. And, of the



Cheetah Mobile and Carnegie Mellon University Partner to Improve Mobile Advertising

By: Daniel Harbor, CMU-SV
SAN FRANCISCO, Sept. 15, 2015

Cheetah Mobile (NYSE: CMCM), the leading developer of mission-critical mobile utility applications, today announced a partnership with Carnegie Mellon University that will research innovative mobile advertising techniques prioritizing the user experience while still seeing increased results. To kick off the partnership, Cheetah Mobile is sponsoring the flagship practicum course for the Information Networking Institute (INI) Master's program at Carnegie Mellon's Silicon Valley campus this semester.

This collaborative working relationship with a top university in the U.S. has been a goal of Cheetah Mobile's CEO, Sheng Fu.

"I'm thrilled that our company has the opportunity to join with Carnegie Mellon for new perspectives in mobile advertising," said Cheetah Mobile CEO Sheng Fu. *"The university and its students will be a great asset in tackling the challenges being presented by the mobile industry."*

Arther Wu, Cheetah Mobile's Senior Director of Monetization and Business Operation, will provide mentorship for the INI Practicum team. The project will also be supported by CMU Alumni, GM of Cheetah Mobile Taiwan Agency David Wu and Cheetah Mobile Business Development Manager Wade Brogdon.

"It's great to get to work with Carnegie Mellon's talented students. CMU has assembled an amazing team and I'm confident they'll come up with some terrific results from Cheetah Mobile's advertising intelligence," said Arther Wu. *"The Cheetah Ad Platform values advertising performance the most and our ultimate goal is to have the best performance with the lowest cost by leveraging our big data from cloud computing."*

Cheetah Mobile's INI practicum team includes four MSIT-Mobility students:



Akshay Pushparaja has over three years experience in the investment banking domain and has won two Apple Watch hackathons hosted by ifwe.co and ChimeHack2 during summer 2015. His fields of interest include mobile application development, web application development, and cloud computing.

Xi Wang has developed Android applications based on C/S architecture and gained industrial knowledge about AWS cloud computing service and web development. He is interested in Android application development and cloud computing.

Kailiang Chen has several years of industrial experience working on the Android framework and application development, along with knowledge of cloud computing, distributed system, computer vision, and machine learning.

Vinay Ramkrishnan has over three years of experience in mobile application development on phones and tablets, but also includes Android Wear, TV, and Google Glass. Ramkrishnan was also recently a finalist at the LinkedIn HackDay Event.

"Real-world becomes the classroom in the industry-sponsored practicum, offering students the incredible opportunity to learn, grow and thrive at

the pulse of the ever-evolving mobile applications field," said Dena Haritos Tsamitis, director of the Information Networking Institute (INI). *"We are grateful for the opportunity to partner with Cheetah Mobile and eager to see the great work students will accomplish under the mentorship of their expert team."*

Patrick Tague, Associate Director of Carnegie Mellon's INI, is the faculty advisor for the team.

"Partnering with Cheetah Mobile affords our students a hands-on learning opportunity, one that will allow them to make real-world impact with a major player in the mobile space," said Tague, associate director of the INI.

With nearly 500 million monthly active users on mobile, Cheetah Mobile has quickly emerged as an important player in the mobile advertising world. The company unveiled its global Cheetah Ad Platform in June and has kicked off a global tour for the platform that will include events in India, United States, United Kingdom, Indonesia, Taiwan, Russia, and Brazil.

Advertising as a monetization method has been heavily tread on for decades, a recent challenge, however, is displaying and creating engaging ads on these new and impossibly small devices.

Cheetah Mobile, together with Carnegie Mellon, wants to help the next generation of entrepreneurial focused people succeed by being able to monetize their software and sustain new ideas, while still keeping users satisfied with a fantastic in-app experience.



NRP Showcased in 2016 Spinoff Magazine

Source: Spinoff Magazine 2016

The Ash Center for Democratic Governance and Innovation at the John F. Kennedy School of Government, Harvard University, has recognized two NASA fixtures as part of its inaugural Bright Ideas Program.

According to the center, the Bright Ideas Program began in 2015 as an effort *“to further highlight and promote creative government initiatives and partnerships so that government leaders, public servants, and other individuals can learn about noteworthy ideas and can adopt those initiatives that can work in their own communities. Beginning with these Bright Ideas, the Innovations Program seeks to create an open collection of innovations in order to create an online community where innovative ideas can be proposed, shared, and disseminated.”*

NASA Research Park (NRP) at NASA Ames Research Center received one of the awards. NRP is a world-class, shared-use research and development and education campus for industry, academia, nonprofits, and government. It provides a physical place for innovation and entrepreneurship and serves as a technology accelerator

through fostering both informal and formal collaborations. Today the NRP houses more than 70 industry and university partners, with commercially standard leases, and provides on-site collaboration with NASA on a variety of technologies and disciplines.

The resulting innovations include projects as diverse as clean energy servers now powering Fortune 500 companies (*“Energy Servers Deliver Clean, Affordable Power,”* Spinoff 2010) to a precision coffeemaker designed by an intern from the facility.

Also winning a Bright Idea Award was NASA’s International Space Apps Challenge, a two-day incubator where teams of programmers, students, scientists, space enthusiasts, artists, educators, entrepreneurs, and others gather from around the world to take on one or more of a set number of

challenges proposed by NASA and other

Government agencies. Most of the challenges revolve around taking Government data and creating apps, Web sites, or hardware to make use of those assets for the benefit of the public. Last year’s International Space Apps Challenge saw more than 13,300 participants in 133 locations tackle nearly 1,000 projects.

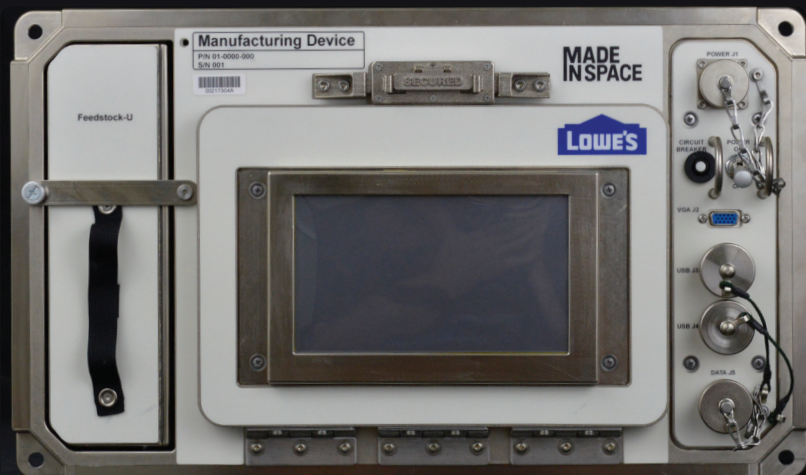


awards. NRP

3D Printer continued from page 1

In a partnership with NASA and Northrop Grumman, Made In Space wants to 3D print outside the station in the vacuum of space. They’re calling it Archinaut. *“Either Archinaut looks like it’s pulling objects out of its belly, or it will look like it’s climbing the object as it builds it,”* Dunn explained. The reason is compelling; a spacecraft built on Earth has to be able to launch on a rocket. NASA space technology associate administrator Stephen Jurczyk said, *“So we do this origami, where we fold up solar arrays, we fold up reflectors.”* Building things high above the Earth means you don’t have to launch oddly items.

The first step is a test – a smaller Archinaut tethered to the space station they hope to have up in about two years. But soon, it could change communication satellites, build the next space station and pave the way to Mars. *“If we’re going into the final frontier, SpaceX is building the covered wagon and we are building the pickaxes and other tools,”* Made In Space CEO Andrew Rush said.



CMU-SV's Karishma Shah Honored with Forbes 30 Under 30 for 2016

By Chris Zeise

Source: Forbes 30 Under 30 for 2016

February 16, 2016 | CMU Silicon Valley



Karishma Shah (MS '17), a current student of the Integrated Innovation Institute's part-time MS in Software Management program, has been selected for Forbes 30 Under 30 2016 list in the Consumer Technology category. Selected from a list of more than 15,000 of today's best and brightest, this prestigious honor is given to just 600 individuals across 20 sectors each year, whom according to Forbes are considered, "America's most important young entrepreneurs, creative leaders and brightest stars."

Impact at Google & Beyond

Shah was Google [x]'s youngest hire, brought on at the age of 21. As program manager of the Rapid Evaluation team, a small team charged with ideating and prototyping new moonshots for Google [x], she has been a critical early team member cracking challenges to defictionalize moonshots across five industries. Her contributions include cofounding a natural language processing moonshot and leading operations for the Project Wing drone delivery service in Australia. With a founding team that included Astro Teller, CEO of Google [x], and Megan Smith, now CTO of the White House, she launched and led global partnerships for we.solveforx.com, a platform that aims to accelerate progress on technological and scientific moonshots around the world. She also founded Google's 10x Thinking Team which facilitates workshops globally to spread the "10x thinking" philosophy and ideation process of coming up with radical solutions to global challenges.

It's no wonder that as Forbes combed through the brightest young people in tech to create its 30 Under 30 Consumer Technology list, Shah was chosen from the cast of hundreds. After narrowing the nominations down to forty, a panel of three expert judges picked the top 30 finalists. This year the panel of insiders included Phil Libin, founder of Evernote and managing director at the venture firm General Catalyst, Tina Sharkey, partner at SherpaFoundry, and Alan Schaaf, founder of image platform IMGUR and an Under 30 alumnus.

"It's surreal to be a part of the 30 Under 30 community with so many people who have inspired me, like Mark Zuckerberg. I'm humbled and honored." Shah adds, "The outpouring of support from across the world has been touching. I'm receiving thoughtful emails from people in languages that I can't even read without Google Translate! It's given me more motivation to work on technologies that can better the lives of people globally."

Shah on Software Management & Leadership

Shah joined our part-time MS in Software Management program last fall and has already been using her experiences from the program in her work. *"My skills are being sharpened in the SM program; particularly, having focused on R&D in my career thus far, I'm learning a tremendous amount by diving into the scaling of technology products as they become more mature. I hope to apply these skills to continue to solve problems in the world and eventually become an angel investor and mentor to future entrepreneurs,"* Shah explains.

We asked Shah for her views on leadership and what the important qualities and motivating factors are of a good leader. Shah responded, *"A leader envisions possibilities and brings them to reality through empirical problem solving and the power of collaboration. I believe diversity of thought is the single most important driver of innovation. [W]ith empathy, humility, and drive, a strong leader can assemble and empower a team with a variety of perspectives to accomplish a common goal. A quote by Wilferd Peterson that I have hanging in my room reads, 'Walk with the dreamers, the believers, the courageous, the cheerful, the planners, the doers, the successful people with their heads in the clouds and their feet on the ground. Let their spirit ignite a fire within you to leave this world better than when you found it.' I find myself surrounded in the technology industry by people igniting such a fire within me to lead and leave this world better than when I found it."*

View the entire 30 Under 30 List on Forbes.com

NRP Post

Take Me Out to the Ballgame, continued from page 4

He started his career at Ames as a National Research Council Post-Doctoral Fellow in 1981, and after about 12 years on the Stanford University staff, joined the NASA civil service ranks in 1996.

The AOX branch at Ames specializes in experimental research and testing in aerodynamics and fluid mechanics using advanced instrumentation techniques, a lot of them developed in house. In recent years, the branch has made significant contributions to the Space Shuttle, Constellation, Mars Science Lab, Space Launch System and the Fundamental Aeronautics Programs.

Mehta's interest in sports ball aerodynamics was initially developed in England



Dr. Mehta with students from Athletic Scholars, A Silicon Vally non-profit who helps young girls develop critical life skills and knowledge of STEM topics

where he conducted a detailed experimental study of cricket ball "swing" using wind tunnels. Upon moving to the US, he extended his interests to include golf ball and baseballs, and more recently, tennis balls, volleyballs and soccer balls. This resulted in a landmark article entitled: "Aerodynamics of Sports Balls" which was published in the Annual Reviews of Fluid Mechanics in 1985. Since then, Rabi has published several articles on this topic and he is regularly consulted by sports organizations and quoted by all forms of the media.

Although not part of NASA's main mission, this topic is often used by the NASA Education Office to get students interested in STEM and thereby inspire the next generation of scientists and engineers.

The Exploration Lecture Series, which began in 2004, is an ongoing public lecture series which focuses on the broad theme of exploration on Earth and in space. Past speakers have included astronauts, authors, scientists and adventurers.

(**"Take me Out to the Ballgame"* is a 1908 Tin Pan Alley song which has become baseballs' unofficial anthem.)



Made In Space Thinking Big, continued from page 1

ing Space Systems in order to leverage their unique expertise. Made in Space will lead the team, applying their established space-based additive manufacturing technology. Northrop Grumman will provide expertise in electronic interfaces and external thermal control analysis. Oceaneering Space Systems will design and build the manipulator arm.

"In addition to transforming the current state-of-the-art for space manufacturing, the development of the Archinaut capability will be a great opportunity for Made In Space to collaborate with established space companies which possess complimentary resources and proven expertise," said Mike Snyder, Co-Founder and Chief Engineer.

The full vision of Archinaut will enable spacecraft which manufacture and assemble unlaunchable structures once on orbit, enabling new mission capabilities such as large antennas and base stations. The initial Archinaut Phase I program will perform a series of technology demonstrations in order to bring the final technical hurdles beyond the tipping point for commercial feasibility.

Archinaut follows Made in Space's previous work with NASA in developing additive manufacturing for space, including the demonstrator, "3D Printing in Zero-G Experiment," currently deployed aboard ISS, and the commercially operated Additive Manufacturing Facility, scheduled for launch in the first half of 2016.

"Archinaut is a major milestone on the roadmap for bringing large scale manufacturing to space. This announcement is a result of the technology development that has been underway since our company's inception and sets the stage for what is to come in both the



International Space Station ratchet wrench made to Earth for test

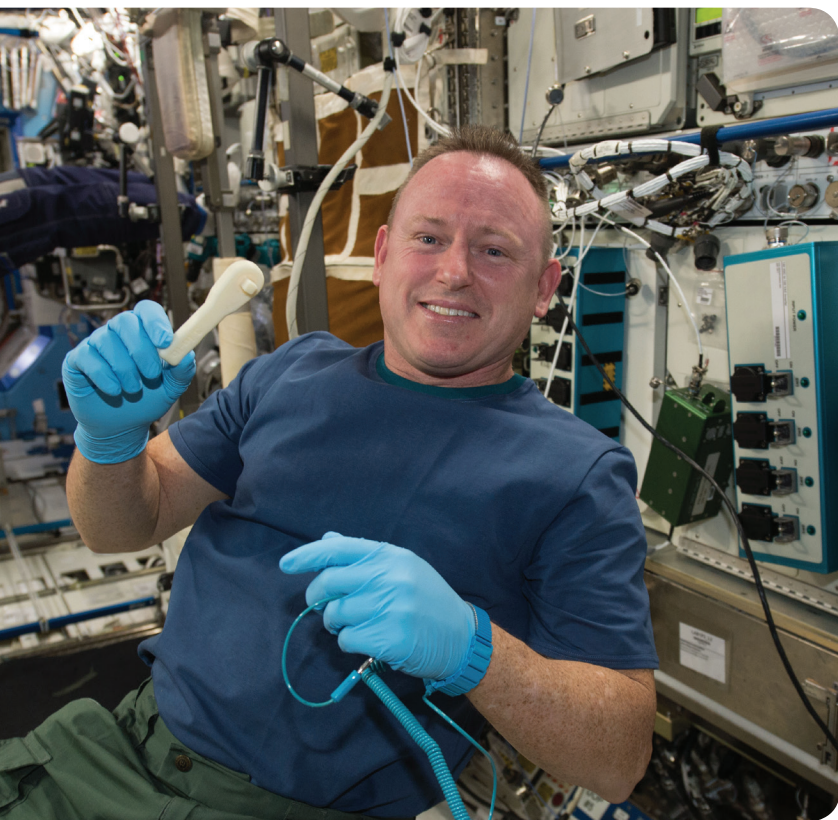
public and private sectors,” said Jason Dunn, Co-Founder and CTO Jason Dunn.

About NASA’s Tipping Point Technologies

A technology relevant to NASA is considered at the tipping point if an investment in a demonstration of its capabilities would result in a significant advancement of the technology’s maturation, high likelihood of infusion into a commercial space application, and significant improvement in the ability to successfully bring the technology to market.

About Made In Space

Made In Space, Inc. (MIS) was founded in 2010 as the world’s first space manufacturing company. MIS was contracted by NASA to design, build, and operate the 3D Printing In Zero-G Experiment (3D Print) on the International Space Station (ISS) in 2014. 3D Print became the first machine to manufacture off-Earth. Controlled from a mission operations center at MIS HQ in the NASA Ames Research Park, the device allows for hardware to be digitally sent to space and



Space Station Expedition 42 Commander Barry “Butch” Wilmore shows off a wrench 3-D printed on the station. The wrench and other parts will return for testing at NASA’s Marshall Space Flight Center in Huntsville, AL

printed out. By the end of 2015 the company will launch a new 3D printer, the Additive Manufacturing Facility (AMF), to provide hardware manufacturing services to both NASA and the U.S. National Laboratory onboard the ISS. As the first commercially available manufacturing service in space, the AMF will put the capability of off-world manufacturing in the hands of space developers everywhere.

CMU-SV DMI efforts bring wireless radio technology to Nepal, aid in earthquake emergency Communications

By Alexandra George, 16th December 2015

In May of 2015 not far outside the city of Kathmandu, Nepal, Dr. Sanjeeb Panday and a team from the University of Tribhuvan construct a repeater, a large antenna-like device used for amateur radio emergency communications. In the wake of the first earthquake, the repeater will enable communication between villages when all other infrastructure has failed. But as Dr. Panday and his team are hard at work, the extremely destructive 7.3 aftershock of the earthquake hits. The team must evacuate to save their lives. As soon as it is safe to return the team completes its task; they are the only team during the earthquake to



Dr. Sanjeeb Panday assembles a repeater antenna before a 7.3 aftershock

successfully build infrastructure for the public to use.

While constructing the repeater was not an easy feat, getting the repeater into the region took even longer. With the help of the Disaster Management Initiative (DMI), located at Carnegie Mellon University’s Silicon Valley Campus, Nepal was able to use amateur, or ham, radio technology during the April earthquake.

Dr. Martin Griss, Director of the DMI, founded the center in 2009 with an annual workshop that brought together citizens, professionals, and experts to discuss technological solutions to all kinds of natural disasters. They discussed topics such as mobility, open sourcing, and low-cost technologies that could change the face of disaster relief.

In 2010, Suresh Ojha, who serves on the board of the Global Nepali Professional Network (GNPN, also known as CAN-USA), joined the DMI. Ojha, who also had personal ties to Nepal, explained the challenges Nepal faces in terms of disasters. Not only is it a poor nation, dealing with the aftermath of a civil war, hunger, and other issues, but the region is also very vulnerable to earthquakes.

“An earthquake is expected in Kathmandu every 75 years,” said Ojha. “We expected it, but didn’t know when it would happen. The DMI saw the important role that disaster communications could play.”

The idea for Nepal was to model the ham radio system that exists in the United States—radios that connect through a system of repeaters. Each radio can only communicate so far, so the repeater, which is a large structure placed on mountaintops or buildings, takes in the communication

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NASA And Mountain View's Made In Space: Making History, Again

By Stephanie Chuang - NBC Bay Area
February 19, 2016

Historically, when you talk about getting things into space, it's always been attached to a rocket.

Not anymore. At least, that's the idea behind Project Archinaut spearheaded by Made In Space, a company founded in 2010 headquartered at NASA Ames in Mountain View. Made In Space made history in 2014 when it put the first ever 3-D printer on the International Space Station, printing the first ever object off of Planet Earth

NASA has awarded Made In Space with its latest effort: manufacturing large-scale objects in space. This is what Archinaut is all about. "It's not a 3-D printer anymore, it's a robotic manufacturing capability that is launched into space," explained Jason Dunn, Made in Space Chief Technology Officer. "Once it gets there, it builds entire spacecraft, large trusses that you can build a new space station out of".

The idea, according to Dunn, is about five years away from reality. At that point, he and the company believe they can offer the



As seen on NBC Bay Area: from left to right - Andrew Rush, President, Made In Space; Howard Eller, Advanced Concepts Chief Architect, Northrop Grumman; Dr. Eugene Tu, Ames Center Director; Stephen Jurczyk, NASA Associate Administrator for Space Technology Mission Directorate

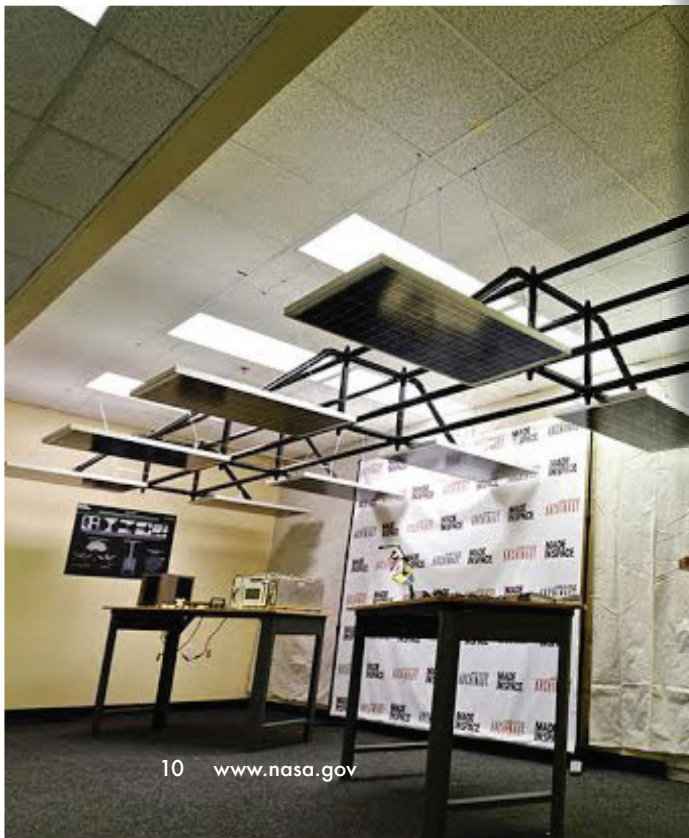
right technology to get picked up by the commercial sector. "We're a lot closer than most people think. The current Archinaut program with NASA is in the initial period so (there is) a lot of technology development, but we are on the five-year

horizon to doing some really large-scale structures in space," said Dunn.

Made In Space's latest project is a second-generation 3-D printer that is sitting on a launchpad now on Cape Canaveral in



Florida. Dunn said it's slated to be on the space station in March. Once installed, he added, technically everybody on Earth has access to manufacturing in space. The process is simple: send a digital file of the part desired, Made In Space sends that to the printer, and the part is manufactured.



NASA Ames Office of Mission Assurance Hosts GIDEP for RMV Site Visit

Moffett Field, February 16, 2016

A recent visit by the NASA Ames Office of Mission Assurance & Safety and Training Staff of GIDEP (Government Industry Data Exchange Program) was hosted by Bob Vermillion, CEO & Founder and Renee Mitchell, President, RMV Technology Group LLC, a NASA NRP Industry Partner.

Bob conducted demonstrations on some products and consumables used in the manufacturing environment identified as "Suspect Counterfeit" by a combination of simple techniques that can be performed by Incoming Inspection personnel or US Customs & Border Patrol officers with RMV "Hands On Suspect Counterfeit Training." Since 2008, Bob Vermillion has presented on the troubling expansion of Counterfeits in the Supply Chain that not only affects the Warfighter, but also USA companies, distributors and end users. Bob's numerous articles and white papers together with training and presentations can be viewed on line at <http://www.esdrmv.com/content/1st-present-publish-train-suspect-counterfeit-esd-packaging>

Bob was invited to be the Luncheon Speaker on 3rd May for the NASA GIDEP New User Training Clinic, from 11:20 AM to 12:45. Bob's talk is titled "Trust but Verify: Suspect Counterfeit



Issues in Aerospace & Defense that Compromise the Supply Chain." To register or to get updates, please visit www.gidep.org

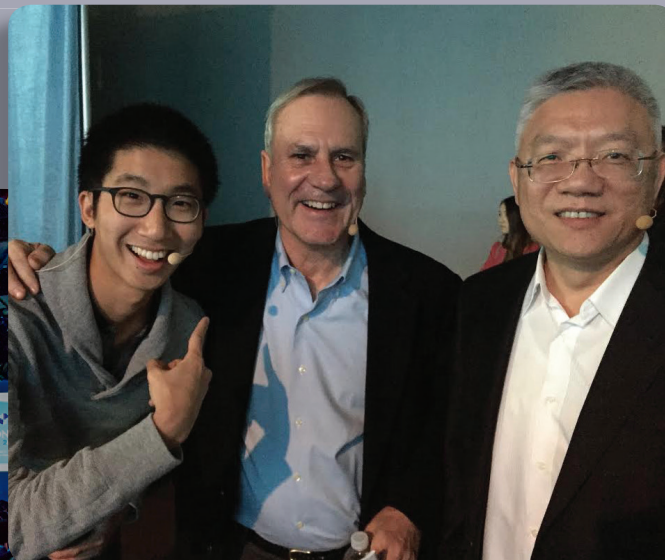
RMV Technology Group LLC, a NASA Industry Partner, provides High Tech Engineering & Training Solutions and is the largest Electrostatics (ESD) Laboratory located on at NASA site. RMV conducts Aerospace & Defense Training and new courses for 2016 can be viewed on www.ESDAeroSpaceTraining.org.

RMV is a Service Disabled Veteran Owned Small Business located onsite at NASA Ames Research Center in Building 19 down the hall from UC Santa Cruz and Carnegie Mellon University adjunct classrooms.

Thanks to Everyone Who Helped Make Connect 2016 a Big Hit

Press Release

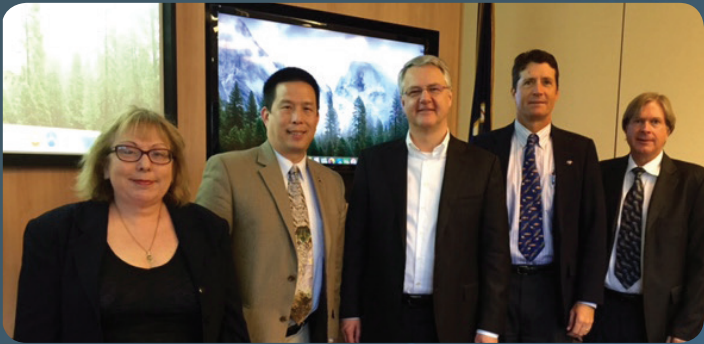
January 20, 2016 | x



Carnegie Mellon sponsored Cheetah Mobile's Connect 2016 Cross-Pacific Mobile Internet Conference, which was held on January 14. Connect 2016 is a mobile-focused forum which discussed three major areas: startups' power to instantly go global, how big data impacts people's daily lives, and strategies for performing effective international business.

Connect 2016, which was held in San Francisco, was a one-day event featuring talks and fireside chats from various speakers, including keynote speaker former U.S. Vice President Al Gore. Also attending were speakers Juggs Ravalia, vice president of platforms at Yandex and visiting scientist at CMU-SV, and CMU-SV's Distinguished Service Professor Stuart Evans.

"The developing partnership between Cheetah Mobile and our Silicon Valley campus is exciting and timely, particularly when considering the topic of how Chinese companies can globalize," says Evans. "It was an honor to have been a speaker at the 2016 Connect conference.



On March 8, 2016 Professor Vernon Gibson, Chief Scientist Advisor, UK Ministry of Defence visited NASA Ames and toured the NASA Research Park. Dr. Eugene Tu provided an overview of the Center.

Picture from the left: Ms. Janice Fried, Director NASA Research Park, Dr. Tu, Center Director, Professor Gibson, Dr. Tom Edwards, Deputy Center Director, Mr. Gary Martin, Director Partnership Directorate.



NASA/Google Moffett Federal Airfield Lease won the GSA Achievement Award for Real Property Best Practices and Innovation. The long term lease stands out both for its complexity, economics, and positive long-term impact to the Agency as well as local community.



U.S. Geological Survey Acting Director Dr. Suzette Kimball and Mr. Mark Sogge Deputy Director of U.S. Geological Survey visited Ames and NRP on December 9, 2015 to discuss partnership and co-location opportunities with NASA Ames Director Dr. Eugene Tu & Associate Director Steven Zornetzer

DMI Wireless Technology, continued from page 9

on one frequency and sends out the message on another frequency. The message is able to travel over great distances from repeater to repeater, traveling across the country or even across the world.

"In the beginning there was only amateur radio," said Martin Griss. "As new technology was developed it then became commercialized. But ham radio has existed for over one hundred years and is independent of commercial communications."

Ham radio plays a very important role in emergency communications for a number of reasons—the first being that when all other communications and infrastructure fail, amateur radio still works.

Many of the villages in Nepal lie in valleys. So a network of repeaters placed on mountaintops could allow villages to communicate with each other and identify locations of greatest need and easiest access.

The DMI helped GNPN make contact with donors, the U.S. Embassy in Kathmandu, and other organizations, as well as become involved with Pacific Endeavor, a multi-military coordination effort that runs exercises for humanitarian aid disaster response purposes.

"Even more than providing a model, the DMI was key in helping us make the connections and in developing the relationships necessary to get into the region," said Ojha.

There were difficulties physically getting the repeaters and radios into the region. The second repeater, the one that Dr. Panday constructed, was mislaid at customs. Ojha, using the connections made through the DMI, had to persuade officials to let it through.

"Almost certainly our relationship with the DMI saved lives," said Ojha. "Due to the coordination we were able to manage before, during, and after the earthquake, we were able to bring reliable emergency communication technology to Nepal."

The goal for the future is to establish more repeaters. Using the first two during the earthquake gave government officials a chance to see what was effective and what was not. Now they can continue forging a path by training village-based operators to use the wireless radio and by navigating through regulatory roadblocks.

"There are two questions you need to ask in these types of situations," said Griss. "The first is: What should you do? In this case, ham radio was determined. The second is: How should you do it? This is the part that the DMI helped with. It's the kind of thing you really feel good about."

THE NRP POST

NASA Research Park

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