

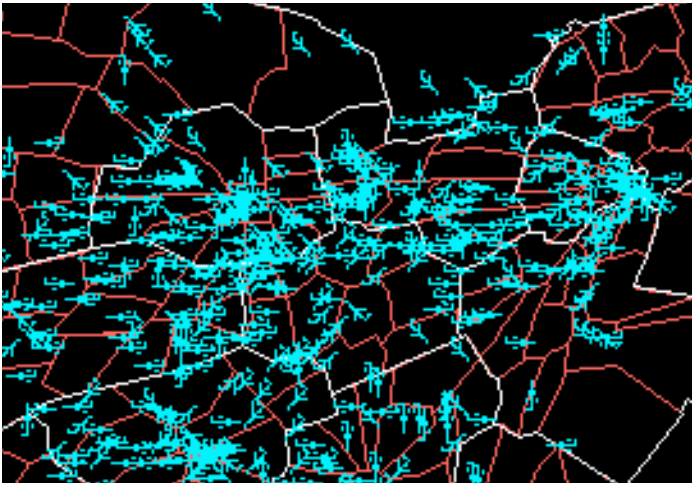
AIAA SAN FRANCISCO SECTION



IN4M-LETTER

VOLUME XLVI, NUMBER 2
SEPTEMBER-OCTOBER 2004

AMERICAN INSTITUTE OF AERONAUTICS AND ASTRONAUTICS SAN FRANCISCO SECTION
P.O. BOX 1548, MOUNTAIN VIEW, CA 94042 <http://www.aiaa-sf.org>



At left: snapshot of air traffic over the northeastern portion of the United States. The snapshot was produced by the FACET graphical user interface. (Source: NASA Ames Research Center)

Thursday, October 28, 2004

FACET

Future ATM Concepts Evaluation Tool

Dr. Kapil Sheth
UC Santa Cruz UARC
Moffett Field

In spite of recent events, the global air traffic management (ATM) system faces the challenge of increasing system capacity and flexibility to accommodate traffic growth and user preferences, while at the same time maintaining or improving the current level of safety. The U.S. National Airspace System (NAS) alone has roughly 4,000 commercial aircraft simultaneously in flight at mid-day on a typical day. New ATM concepts must be explored and evaluated prior to field-testing and eventual deployment.

FACET (Future ATM Concepts Evaluation Tool) is a simulation and analysis tool developed at NASA Ames Research Center for exploration, development, and evaluation of advanced ATM concepts. These concepts include new ATM paradigms such as Distributed Air/Ground Traffic Management, advanced Traffic Flow Management, and new decision support tools for controllers working within the operational procedures of the existing air traffic control system.

FACET models system-wide en route airspace operations over the contiguous 48 states. Its architecture strikes a balance between flexibility and fidelity. This enables FACET to model airspace operations at the U.S. national level, and process over 5,000 aircraft on a single desktop computer running any of a wide variety of operating systems. It has been designed with a modular software architecture to facilitate rapid prototyping of diverse ATM

Thursday, September 23, 2004

Secrets of Successful Networking

Jeff Colvin
Link LLC
San Jose, CA

Much more often than not, you will land your next sale, find your new job, or learn something valuable through networking. But how many of us are networking effectively?

Jeff Colvin, a principal of Link LLC, a management consulting firm, discovered that there are very few naturally born networkers, and concluded that the rest of us needed a process. As a result, he created the interactive *Secrets of Successful Networking* workshop, which is typically tailored to a particular client's approach to business. It explores up to seven different situations for networking, and help each participant to personalize a (before, during, and after) process that will work for them. The workshop provides each individual with techniques, tools, and methods that generate immediate results in connecting to the right people to sell themselves or their product/service.

Secrets of Successful Networking, continued on page 5

FACET, continued on page 2

In this issue

Secrets of Successful Networking	Page 1
Consultant Jeff Colvin on how to personalize networking.	
FACET	Page 1
Dr. Kapil Sheth introduces the Future ATM Concepts Evaluation Tool (FACET).	
NASA Explorer Schools in Bay Area	Page 2

Short Notes	Page 2
Winning Essays of the 16th Annual Essay Contest ---	Page 3
What 7th and 8th students think of sending humans to Mars.	
The In4m-Letter in Transition	Page 5
Calendar	Page 6

NOTE: This newsletter and many back issues are available in PDF form at: <http://www.aiaa-sf.org/newsletter>. (Pages 3-4 only available in PDF.)

concepts. FACET has prototypes of several advanced ATM concepts; these include:

- airborne self-separation
- decision support tool for direct routing
- advanced ATM techniques utilizing dynamic density predictions for airspace redesign and aircraft rerouting, and
- integration of space launch vehicle operations into the U.S. National Airspace System (NAS).

Its visualization of the NAS is so compelling that it caught the attention of Edward Tufte, Professor Emeritus of Yale University, who is considered the leading authority on information design.

In this talk, Dr. Kapil Sheth, one of the founders of the FACET project, will introduce the tool and show several animations generated by FACET.

About the Speaker

Dr. Kapil Sheth received his B.Tech. degree in Aeronautical Engineering from the Indian Institute of Technology (I.I.T.), Kharagpur, India. He received M.S. and Ph.D. degrees from the Applied Mechanics and Engineering Sciences Department at the University of California at San Diego. Dr. Sheth has been at NASA Ames Research Center since 1996, currently as a Principal Scientist for UC Santa Cruz. He is a co-founder of the FACET (Future ATM Concepts Evaluation Tool) project and specializes in Traffic Flow Management (TFM) problems. Dr. Sheth is a recipient of NASA's Turning Goals Into Reality (TGIR) award, and, Raytheon's Distinguished Level, Excellence in Technology award.



Additional Resources

- Bilimoria, K., Shridhar, B., Chatterji, G., Sheth, K., and Grabbe, S. "FACET: Future ATM Concepts Evaluation Tool," *3rd USA/Europe Air Traffic Management R&D Seminar*, Napoli, Italy, June 13-16, 2000.
- Future ATM Concepts Evaluation Tool (FACET) web page <http://www.arc.nasa.gov/lifeonearth-facet.cfm> provides a brief introduction to FACET and links to *A Day in the Life of Air Traffic Over the United States*, a FACET-generated animation of NAS traffic.
- *Edward Tufte: Ask E.T. Forum* http://www.edwardtufte.com/bboard/q-and-a?topic_id=1 Prof. Tufte initiated two discussion threads related to FACET-generated animations, the first entitled "Amazing animation: A day in the life of air traffic over the US" (April 28, 2003) and the second entitled "Animations of Air Traffic" (August 27, 2003).

NASA Explorer Schools in Bay Area

NASA has selected 50 schools from across the country for a three-year partnership which teams them with NASA field centers. Known as *NASA Explorer Schools* (NES), the program focuses on science, technology, and math content for grades 4 through 9. The schools gain access to NASA content, experts, and other resources.

In California, six schools were selected. Among them are two Bay area schools: Barnard White Middle School, Union City, and Toyon Elementary School, San Jose. A launch celebration is scheduled for September 30.

Toyon Elementary is led by principal Deborah Washington. Its fifth grade teacher Juanita Ryan is an AIAA SF council member and national AIAA distinguished lecturer. In a letter to the school last April, Congressional Representative Zoe Lofgren congratulated Toyon Elementary on its selection. The September launch celebration will be attended by various local dignitaries including Lofgren, Governor Arnold Schwarzenegger, NASA officials, and local representatives of engineering professional societies including AIAA.

New schools will be added to the program next year. Schools will be able to apply on-line from September 15, 2004 through January 30, 2005.

Additional Resources

- *NASA Explorer Schools* <http://explorerschools.nasa.gov> describes the program and has a link for on-line applications.

Short Notes

- The Santa Clara Valley of the IEEE/Lasers & Electro-Optics Society will host an **SBIR'04 Fall Workshop** in Sunnyvale, on Thursday-Friday, October 7-8. SBIR, Small Business Innovative Research, is mandated of large federal government agencies. More information at <http://ewh.ieee.org/r6/scv/leos/sbir/index.html>.
- The Silicon Valley Engineering Council (SVEC) will host a symposium on **Engineering Advancements for our Future** in San Jose, Friday, October 22. Sessions will cover: nanotechnology, biomedical, advanced materials - mechanical, and advanced materials - electrical/chemical. Keynote speaker will be Steve Wozniak, co-founder of Apple Computer. As a member of a participating society in SVEC, AIAA members are entitled to a discount for the meeting. More information can be found at: <http://www.svec.org>

!!! Where are those middle pages ???!

If you are new to the AIAA SF IN4M-LETTER, you might think the middle pages are missing from your copy. Actually, this is creative cost-saving. The middle pages are reserved for retrospectives and special features. The full-color full issue of the IN4M-LETTER is available on the section website at <http://www.aiaa-sf.org>.

In this issue are the written opinions of 7th and 8th graders on whether or not we should send humans to Mars. We trust you will find them original and thought-provoking.

Winning Essays of the 16th Annual Essay Contest

Winners of this year's Annual Essay Contest were honored at AIAA San Francisco Section dinner meeting on Wednesday, July 21, 2004. The contest commemorates the Apollo 11 landing on the moon on July 20, 1969. With recent interest in Mars exploration, the chosen theme for this year's contest is: *Should we send humans to Mars? Why or why not?* This year's winners are listed below.

- **First Place, 7th Grade:** *Jocelyn Qian*
Hoover Middle School, San Francisco, CA
Sponsoring teacher: Dennis Kujawa
- **Second Place, 7th Grade:** *Nathan Gadye*
Hoover Middle School, San Francisco, CA
Sponsoring teacher: Dennis Kujawa
- **Third Place, 7th Grade:** *Jarrett Hornbostel*
Hoover Middle School, San Francisco, CA
Sponsoring teacher: Dennis Kujawa

The contest is open to 7th and 8th graders enrolled in a school in one of the bay area counties covered by the AIAA San Francisco Section – Alameda, Contra Costa, Marin, San Francisco, San Mateo, Santa Clara, and Santa Cruz. The essays are judged on

- originality and realism of ideas presented,
- soundness of logic used to develop ideas, and
- quality of composition and clarity of expression.

- **First Place, 8th Grade,** *Hillary Wagner*
Bernal Intermediate School, San Jose, CA
Sponsoring teacher: Dan Judnick
- **Second Place, 8th Grade:** *Steven Nahmias*
Bernal Intermediate School, San Jose, CA
Sponsoring teacher: Dan Judnick
- **Third Place, 8th Grade:** *Vincent Sheu*
Redwood Middle School, Saratoga, CA
Sponsoring teacher: Julie Shultz

First Place, 7th Grade

To The Crimson Globe

Jocelyn Qian

Hoover Middle School
San Francisco, CA

Sending people to Mars, is it a good or bad idea? In my opinion an attempt to visit Mars would be a wise decision. The inquisitive minds of today need new knowledge. Exploring the red disc, 78 million kilometers away, would be a good choice.

Visiting Mars could help Earth and it will increase our knowledge. For example, new minerals might be found on Mars that encourages plant life. Those substances could be distributed on Earth to create a larger tract of fertile farmland. Homes could be built, and the homeless could get a fresh start. Creating the technology to explore Mars might result in useful advancements. Cures might reside on Mars, and new elements may be discovered.

Consider one of the most common arguments against beholding Mars, not having enough money. I disagree, president Bush offered \$200,000,000,000 for weapons, there is money. Another invalid reason is that we need to solve problems on Earth first. The answer is Mars! Sending homeless to Mars isn't shunting problems away, they can reestablish themselves. Why shouldn't we go?

One of the best reasons to go to Mars is to help our ecosystems. Many species are nearly extinct because of habitat loss. If Mars is explored there is a chance of settling there. We could expand there instead of destroying nature for the sake of improvement.

You can see that there are many reasons to visit Mars. Expanding knowledge, developing technology, and preserving Earth. This is an ingenious idea.

First Place, 8th Grade

Mars Essay

Hillary Wagner

Bernal Intermediate School
San Jose, CA

I do not think we should send people to Mars for three reasons. My first reason is Earth provides everything we need to survive so why do we need Mars? My second reason is sending a group of people to Mars could be dangerous. Lastly, sending people to Mars would be very expensive.

Earth provides the oxygen and atmosphere we need to survive. Earth has a better environment for us. The sun shines perfectly on us and the oceans have the perfect amount of water. Mars' landscape is rough, making it hard to grow food for us. Mars is also farther away from the sun, so we might not be able to get the amount of sunlight we need.

Sending people to Mars could be very dangerous. Most people, like myself, would not be brave enough for such a risky trip. When Earth and Mars are closest, the distance between them is one hundred million kilometers. Many things could go wrong between those one hundred million kilometers.

During this year, the National Aeronautics and Space Administration spent six hundred million dollars to launch two robots toward the surface of Mars. Imagine how expensive sending people to Mars would be.

It does not make any sense to me to send a group of humans to Mars, when NASA can make robots to do the same job as humans. The robots could probably do it better than humans could.

At right: panorama captured by the Mars exploration rover *Spirit*. (Source: Jet Propulsion Laboratory.)



Second Place, 7th Grade

One Planet at a Time

Nathan Gadye

Hoover Middle School
San Francisco, CA

Although space exploration is inspiring, sending people to Mars when we have horrendous problems on Earth is a bad idea. Earth is being destroyed by our carelessness. We're at war, and there isn't enough money to feed and educate every child on our own planet. If we go to Mars we might disrupt other species, too.

We have many problems to solve on Earth. People drive cars that pollute the atmosphere. Countries are at war...including the United States. We must accomplish peace before we explore outer space. Obviously, there's life on Mars. What if we wipe out these species?

Of course, going to Mars could be valuable, too. We would make huge advances in technology as we deal with issues like the cold temperature on Mars. We might find cures for diseases. However, our greatest accomplishment would be fulfilling dreams. After all, no one thought man could ever fly. But because of two brothers with big dreams, people can travel on wings.

We are spending billions of dollars on the war in Iraq. Our economy is suffering and there isn't enough money for public school kids to get decent pencils for testing. How can we send astronauts to Mars if we cannot balance the California budget without cutting services?

We must make life better here on earth before we go to Mars. When there's enough money to create safe, successful schools for all children, then we can consider exploring the Red Planet.

Third Place, 7th Grade

Looking at the Stars

Jarrett Hornbostel

Hoover Middle School
San Francisco, CA

As a five year old, I lay back in my sleeping bag looking at the stars and dream about what living in space would be like. Now as our knowledge of this universe expands, my dreams could become reality. I think we should use our knowledge to explore Mars.

If we explore Mars the technological advances made would benefit humans on Earth as well as in space. We could also eventually develop the technology to settle on Mars, avoiding the overpopulation of Earth. If we went to Mars, it could be a resting place for astronauts going to explore places further in space.

There are problems that would need to be solved, such as how we'd send a human to Mars quickly. There is also the problem of lost muscle and bone mass due to reduced gravity. Dust storms could damage equipment. Freezing temperatures, lack of oxygen and water, and powerful U.V. rays would also need attention. Cooperation between space age nations could help solve these problems.

The present economy of the country may not support the needed research to undertake the project. Waiting until the economy becomes stable again would be necessary before beginning the years of research. If all obstacles are passed, the substances found on Mars could trigger advances in science.

Though there are many challenges, I believe we have the basic technology required so we should take the first steps so we can benefit from what Mars has to offer.

Second Place, 8th Grade

Manned Mission to Mars

Steven Nahmias

Bernal Intermediate School
San Jose, CA

Other than Mars there is no other planet that is within our reach that man can go to and explore. It is the planet that is closest to Earth in its atmosphere, seasons and length of day. I believe man should travel to Mars. There are so many more things that man can learn by first hand experience that cannot be learned through unmanned missions.

First and most importantly man can learn whether we can survive for long periods of time on another planet. We can set up a science station there and in the future colonize the planet. Mankind does not have to be bound to Earth just because this is where we started. In the future people will come from many different places, other planets and even space stations in the far reaches of space.

We might discover new minerals that we did not know existed and find new uses for them. They can be used for new medicines, building materials, or combined with other known elements to make new materials with unique properties.

Mars might also have, or had life on it that was different from ours. Being able to spend time researching the planet will teach us a lot about our own planet's background as well. Mars could also be a jumping off point for us to explore the far reaches of our solar system. All of this will be missed if we don't go.

Third Place, 8th Grade

Vincent Sheu

Redwood Middle School
Saratoga, CA

We should not send people to Mars. We don't have the resources or technology needed for such an odyssey. Mars is a target, a goal that the human race will achieve, but we are unprepared.

Mars has a small atmosphere, and 1/3 of our gravity. It is at least 4.4 light-minutes from Earth, and has surface temperatures ranging from -123_C to 37_C. Such harsh conditions introduce the need for technology we don't have. We will need a spacecraft capable of making the 36-month journey and safely return. We will also need cryogenics technology so that astronauts to hibernate during the trip.

Developing this technology will cost billions of dollars. Currently, we have rudimentary spacecraft that can allow 2-week long trips, not 36-month long ones. We don't have cryogenics technology that would allow people to hibernate and revive safely. These are the basics. For this trip, you would need to carry a massive amount of fuel, food, water, and other supplies. This would cost well over \$100,000,000,000 and take years to prepare. These are resources we don't have. All that time and money would be lost if anything goes wrong aboard the spacecraft. We could send 10,000 robots at the same price.

A trip to Mars is a beacon calling us. However, we do not know enough to go. Too much new technology is needed, and many things could go wrong. We should focus on more achievable goals. When we are ready, Mars will be waiting.

About the Speaker

Jeff Colvin is principal of Link LLC, a management consulting group based in the Silicon Valley. For the past seven years Link has been providing companies with process improvement training and consulting to reduce costs and cycle time in their key business processes. Jeff ensures that the core concepts introduced to all of his clients have practical application and sustainability to positively impact their business.



Jeff began his career in management consulting almost 20 years ago and has served over 50 client organizations ranging from Hewlett Packard and Apple Computers to small start-ups. Throughout his career Jeff has developed many new client relationships, trained and lead consulting teams, and played a major role as a partner in helping grow two different consulting practices. He is well versed in planning and organization and has an unbroken track record relative to achieving client satisfaction and results.

Jeff is affiliated with Stanford University, SJSU Professional Development, University of the Pacific, and Ohlone College, and has designed and delivered workshops for over 800 participants in corporate climates ranging from SBC to NUMMI to Lockheed Martin. His workshops on project management and process improvement have all been very well received with overall scores of 4.7 out of 5 on the average. He is also on the faculty for the University of Phoenix and trains operations management for the graduate and undergraduate students.

The IN4M-LETTER in Transition

...but are you ready?

Where we are headed. As reported in the previous issue, the award-winning AIAA San Francisco Section IN4M-LETTER is undergoing changes in how it is produced and distributed. Much of the section budget now goes to newsletter printing and postage. If the printed circulation can be reduced, the section can pursue other projects or improve existing ones.

The problem. Both the section and AIAA headquarters use e-mail to reach members. However, of the roughly 1400 members of the section, about 300 do not have valid e-mail addresses. The SF section council is looking into ways to let members select print or electronic delivery, but within the limited resources of a volunteer organization.

What you can do. If you have an e-mail address, but haven't been getting regular updates from the San Francisco Section or AIAA headquarters, go to <http://www.aiaa.org/members>, and check your address there. If you or your ISP uses an address-based spam filter, we ask you to enable delivery for aiaa-sf@aiaa-sf.org; we plan to consistently deliver mail from that address. If you strongly prefer a printed newsletter, drop us a post card and let us know.

Jeff received his Bachelor of Science degree from UC Davis and went on to achieve an MBA from California State University, Sacramento. While in school he held a variety of roles including president of the Food Technology Club, which was his major, as well as lifeguard and scuba diving instructor for the physical education department. He is currently on the Board of Directors of the San Jose Silicon Valley Chamber of Commerce and on the Executive Committee of the Common Wealth Club in San Jose. He enjoys an active role in serving Silicon Valley and is a graduate of the SJ Community Leadership Forum.

Additional Resources

- Link LLC website <http://www.linkllc.com>
The *Articles* section provides summaries of writings or presentations by various business leaders. *Links* points to information at other sites on quality and process.

Below: Seven networking situations.



The AIAA SAN FRANCISCO SECTION IN4M-LETTER is a publication of the San Francisco Section of the American Institute of Aeronautics and Astronautics, a non-profit society whose primary purpose is to advance the arts, sciences, and technology of aeronautics and astronautics and to foster and promote the professionalism of those engaged in these pursuits.

Section Officers and Council: A complete directory of the section council can be found at <http://www.aiaa-sf.org>.

Chair	Prasad Gogineni	408/756-2994
	chair@aiaa-sf.org	
Vice-Chair	Rick Kwan	510/656-5012
	secretary@aiaa-sf.org	
Secretary	Eric Mueller	650/604-3529
	secretary@aiaa-sf.org	
Treasurer	Todd Farley	650/604-0596
	treasurer@aiaa-sf.org	
Newsletter Editor	Rick Kwan (acting)	510/656-5012
	newsletter@aiaa-sf.org	
Programs Director	Prasad Gogineni (acting)	408-756-2994
	programs@aiaa-sf.org	

Production Notes: This publication was produced using Adobe FrameMaker 6.0 and converted to PDF by Adobe Acrobat Distiller.

AIAA SF Communications Committee staff: Rick Kwan, Corky Lakin, Bruno Geoffrion, Stephanie Gregg.

Calendar

AIAA SF Section Events

Dinner Meetings: The following are held at the Ramada Inn Silicon Valley, 1217 Wildwood Ave, Sunnyvale, CA [Tel: 408-245-5330]

- Thursday, September 23, 2004, 6:30-9:00pm: Jeff Colvin on *Secrets of Successful Networking* – (Related article on page 1.)
- Thursday, October 28, 2004, 6:30-9:00pm: Kapil Sheth on *FACET* – (Related article on page 1.)

Cost: AIAA members and guests - \$20, students - \$15, non-members - \$25. Cash or check only. **Dinner Meetings Agenda:** No-host cocktails at 6:30pm, dinner & program from 7pm to 9pm.

Registration: By Monday preceding dinner. On-line at <http://www.aiaa-sf.org>, or contact Programs Director by e-mail or phone. **Cancellation:** By Wednesday preceding dinner. Please contact Programs Director. (AIAA pays for all reservations, including no-shows.) **More Info, Questions, Comments, Jokes:** Contact our Programs Director at programs@aiaa-sf.org.

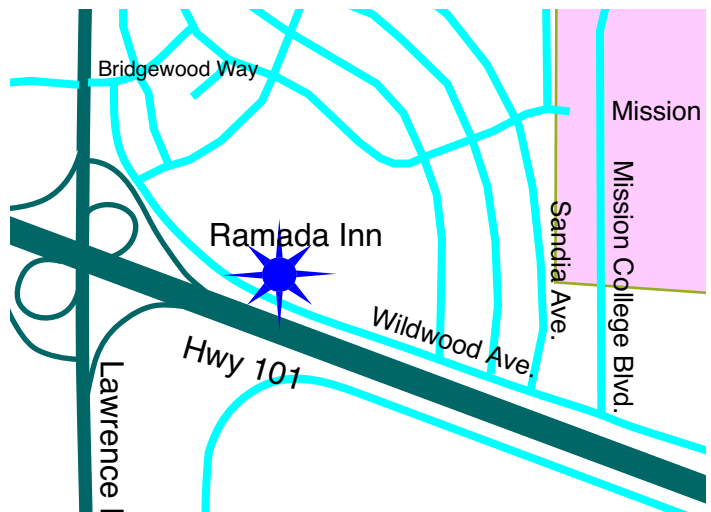
AIAA National Programs

Below are selected conferences, workshops, and other programs sponsored or organized by AIAA, including upcoming Region VI meetings.

- *Space 2004 Conference and Exhibit*, San Diego, CA - Sept. 28-30, 2004.

- *CAENUS 2004 — Conference on Micro-Nano-Technologies*, Monterey, CA — Nov. 1-5, 2004.
- *USAF Developmental Test and Evaluation Summit*, Woodland Hills, CA — Nov. 16-18, 2004.
- *2004 AIAA Missile Sciences Conference*, Monterey, CA — Nov. 16-18, 2004.
- *43rd AIAA Aerospace Sciences Meeting and Exhibit*, Reno, NV — Jan. 10-13, 2005.

Additional details may be found on the national AIAA website at <http://www.aiaa.org/calendar>.



**American Institute of
Aeronautics & Astronautics
San Francisco Section**

**Post Office Box 1548
Mountain View, CA 94042-1548**

Thursday, September 23, 2004

Secrets of Successful Networking

Thursday, October 28, 2004

FACET – Future ATM Concepts Evaluation Tool

**Non-Profit Organization
US Postage Paid
San Jose, CA
Permit No. 936**