



## Rumble in the Desert: Responding to the DARPA Grand Challenge

Thursday, October 27, 2005

**Speaker:**  
**Dr. Sam Kherat**  
Research Engineering Specialist  
Systems, Controls and Components Research  
Caterpillar Inc.

**Location: Bradley University**  
168 Olin Hall, 1401 W. Bradley St., Peoria

**5:00 – 5:30 PM** Networking Session  
**5:30 – 6:15 PM** Dinner (sit-down)  
**6:15 – 7:30 PM** Presentation



The 2005 Defense Advanced Research Projects Agency (DARPA) robotic race is competing on October 8 in California's Mojave Desert. This DARPA Grand Challenge contest is a government-sponsored desert race intended to speed development of unmanned military combat vehicles. The competition is part of the Pentagon's efforts to have a third of the military's ground vehicles unmanned by 2015 to fulfill a congressional mandate. **The challenge is to cross the 175-mile route of unrehearsed desert terrain with no driver and no interaction within a 10-hour time limit, with a \$2M cash prize as the reward.** The race calls for robots with an exceptional ability to sense, think, and act. DARPA officials have compared the event to Lindbergh's crossing of the Atlantic.

In this presentation, Dr. Kherat describes Caterpillar's teaming up with the "Red Team" of Carnegie Mellon University to support two entries in the DARPA Grand Challenge robotic race: Highlander and Sandstorm. A description of the robotic vehicles, sensors, laser scanners, path planning and navigation technologies is depicted.

**Directions:**  
From I-74, exit University St. South. Cross through the Main Street light, the second right is Bradley (not a stop-light). Olin Hall will be 3 blocks down on your right. Visitor parking is located 1 block to the north-east of Olin Hall at the corner of Duryea Place and St. James.

**Cost/Menu:**  
\$12 Members, \$13 Non-Members, \$10 Students/children; Chicken plate dinner (chicken, salad, potato, rice, vegetable)  
**RSVP by Friday, Oct. 21.** at 800-512-1919 or sae\_reservations@yahoo.com. **Public/guests are welcome** (there is no age restriction, but we ask that children be able to listen attentively without disruption).

**May Meeting Sponsorship:**  
Thanks to Jeremy Key from **Honeywell** and Gene Pish from **Lord Corporation** for sponsoring this meeting. Meeting sponsors enable CIS to bring bigger speakers and events, and better serve our members.



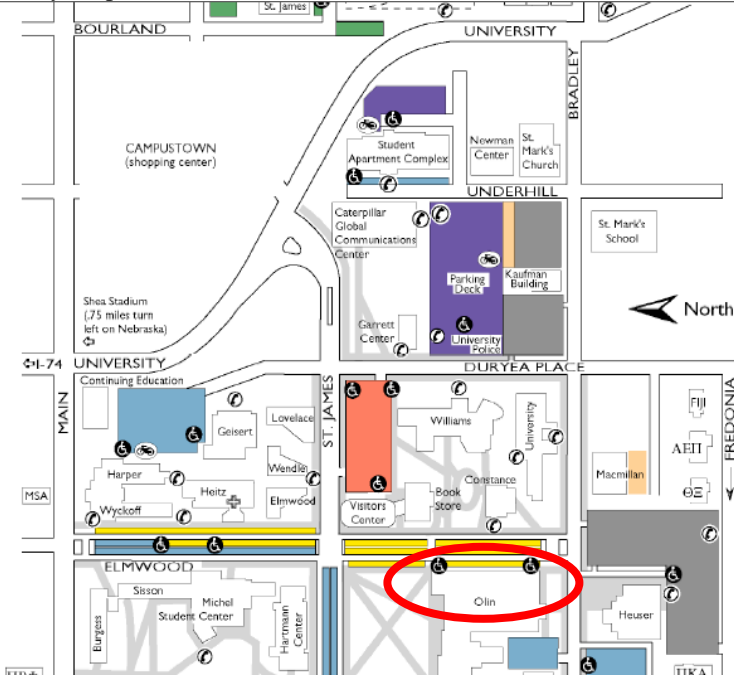
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# Central Illinois Section Centroid News • October 2005



Bradley Map:



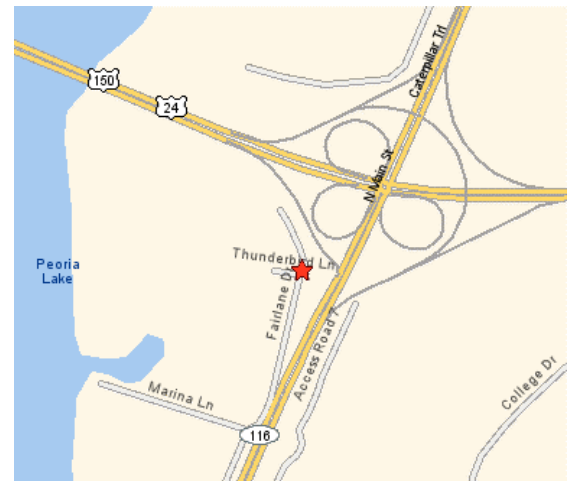
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## Sunday, October 16, 2005, the Uftring Automall will host the Ford GT



The Ford GT was created to celebrate a great era in Ford's history that included a 1-2-3 finish at LeMans in 1966, overtaking the reigning Ferrari dynasty. The GT has all the essential elements of the original - including the stunning low profile and mid-mounted American V-8 - continued in this latest interpretation of the classic. This American supercar will make its way to Uftring Automall for all to see. The hour program will include television commercials, videos, test information, short Q&A, and a Ford GT. Lunch will be provided by Kenyon and the Uftring Automall. **(Please RSVP to Kenyon @ 694-0700 to make sure they have enough food.)**

**Date:** Sunday, October 16, 2005  
**Time:** Lunch @ 11:30 AM, Program @ Noon  
**Lunch:** Sandwiches, Chips, Pop  
**Contact:** Kenyon Wurster (694-0700 or [kenyon@uftringautomall.com](mailto:kenyon@uftringautomall.com))  
**Directions:** Uftring Automall (Service drive behind showroom)  
 500 Fairlane Drive  
 East Peoria, IL 61611-8178  
 Near the Intersection of Rt. 150/24 & Rt. 116





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### Table of Contents

- Meeting Announcements
- In Their Own Words
- Editor's Note
- SAE Commercial Vehicle Congress Nov. 1-3, 2005, Metro Chicago
- September 11, 2005 Autocross Results
- Career Corner—"Mentoring Relationships for Career Development"
- The SAE Story Available through CIS

### In Their Own Words

*We're changing the format of our "Centroid." This year, we invite you to hear from members of the CIS Governing Board, and the people who have brought the programs to our members. This month, **Matt Rampenthal** shares his thoughts on why he helped bring the October meeting to CIS. Matt has been an SAE member for over 10 years, and has been on our governing board in many capacities, including Secretary, Program Chair, Communications Chair, and Treasure. He is currently the 1<sup>st</sup> Vice Chair.*



*Governing Board Member  
Matt Rampenthal*

Greetings fellow SAE members,

As Andrea mentioned in last month's *Editor's Notes*: "SAE has two missions: standards development and life-long education." With this month's program "**Rumble in the Desert: The DARPA Grand Challenge**," we hope to bring a little of both to you. Caterpillar sets a new standard in this year's event by sponsoring two vehicles in the race. The target is to finish no less than first and second. Connection with life-long education will come from our meeting location, Bradley University, and the many college students and faculty who participate in this event.

This month, we are inviting Dr. Sam Kherat from Caterpillar Electronics to present the technology behind the Caterpillar sponsored Carnegie Mellon University DARPA Grand Challenge vehicles. The DARPA Grand Challenge is a 100-mile race from Los Angeles to Las Vegas – by fully autonomous vehicles. This means no driver, no remote control, and no input from anyone—just the on-board systems of these vehicles. I am excited about this program because the Grand Challenge is an excellent example of industry working side-by-side with the universities towards a common goal.

I have been actively involved with CIS for six of the past seven years, and I have never been more excited about our program and section plans. We have a very engaged and dedicated Governing Board with a clear vision on our goals: increased membership involvement with added value to our members. We are experiencing growth as a chapter, which makes this a very exciting time for our section. Our programs are branching out into new, uncharted areas, looking at more diverse program topics and technologies to bring you more information in new ways. We had over 100 attendees and participants at the September Autocross – a fantastic kick-off to our section year.

The only way we can continue to bring the best programs to our members is through sustained member involvement. Let us know how we can improve the section through our surveys handed out at each of our program events. Share your thoughts with any governing board member. Bring a potential new member to our meetings. Bring a former member. Bring a guest. Get involved! Only through the support and participation of our member base can we continue to bring the best programs and value to our members. Your input is valuable – share your thoughts, and help us continue to be one of the best, most active sections in SAE.

We hope to see you at the Bradley campus in October!

Matt Rampenthal  
CIS SAE 1<sup>st</sup> Vice Chair & Secretary





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**Editor's Note**

What was the price of gas this morning on your way to work? I saw \$2.81 a gallon, and I thought "hmmm, not too bad." What????!! When did I start thinking \$2.81 a gallon was reasonable? Probably about the time I thought there was nothing I could do--I can't change my driving habits--every time I get in my car, it's to go somewhere I need to be. But is there really nothing I can do? I'm an engineer--if I can build a race-car out of little more than duct tape and bailing wire, I can solve the high price of gas.



What does it mean to be an engineer? In school, it meant I was a nerd, the one who could recite the Pythagorean theorem and calculate the hypotenuse of a right triangle in my head. If you're Scott Adams (creator of "Dilbert"), an engineer was the sex symbol of the 90's: "...what's the attraction? I think it's a Darwinian thing. We're attracted to the people who have the best ability to survive and thrive. In the old days it was important to be able to run down an antelope and kill it with a single blow to the forehead. But that skill is becoming less important every year." For the 2010's, I think engineers are meant to be the next great heroes. We will find the next great energy source. We will design alternative methods of storing and delivering energy, and new ways to use that energy to move the world's economy. Quoting Matthew Arnold:

The will is free;  
Strong is the soul, and wise and beautiful;  
The seeds of godlike power are in us still;  
Gods are we, bards, saints, heroes, if we will!

Best Regards,

Andrea Brazzale  
Communications Manager and  
Former CIS Section Chair

**SAE Commercial Vehicle Congress Nov. 1-3, 2005, Metro Chicago**

<http://www.sae.org/comvec>

Join SAE for the second annual Commercial Vehicle Engineering Congress and Exhibition bringing together a global assembly of on- and off-highway engineering professionals. Some highlights include:

- Technical Tours
  - Underwriters Laboratories Inc.
  - International Truck - Melrose Park Tour
- Evening Reception and Banquet
  - Bill Graves, former two-term Governor of Kansas and President and CEO of American Trucking Association (ATA)
- Technical Sessions
- Industry Forums
  - Advanced Electronics
  - Global CEO Panel
  - Hybrid Vehicles
- Exhibition

**Many companies will pay employees' entrance fee, as well as allow them to use work time to attend. Speak to your supervisor about this opportunity.**



**Event at a Glance:**

Monday October 31	Tuesday November 1	Wednesday November 2	Thursday November 3
	8:00 a.m. – 10:00 a.m. Technical Sessions	8:00 a.m. – 10:00 a.m. Technical Sessions	8:00 a.m. – 10:00 a.m. Buckendale Lecture / Technical Sessions
	10:00 a.m. – 10:30 a.m. Networking	10:00 a.m. – 10:30 a.m. Networking	10:00 a.m. – 10:30 a.m. Networking
	10:30 a.m. – Noon Industry Forum "Advanced Electronics"	10:30 a.m. – Noon Industry Forum "Global CEO Panel"	10:30 a.m. – Noon Industry Forum "Hybrid Vehicles"
Noon – 5:30 p.m. Technical Tours	Noon – 1:30 p.m. Luncheon Forum Guest Speaker Subject: Electronics	Noon – 1:30 p.m. Luncheon Forum Guest Speaker	Noon – 1:30 p.m. Lunch in Exhibition Hall
Registration	1:30 p.m. – 3:00 p.m. Industry Forum "Intelligent Vehicle Technology"	1:30 p.m. – 3:00 p.m. Industry Forum "Diesel Engines - 2010"	1:30 p.m. – 3:30 p.m. Technical Sessions
	3:00 p.m. – 3:30 p.m. Networking	3:00 p.m. – 3:30 p.m. Networking	
	3:30 p.m. – 5:30 p.m. Technical Sessions	3:30 p.m. – 5:30 p.m. Technical Sessions	
	5:30 p.m. – 6:30 p.m. Welcome Reception Exhibit Hall	5:30 p.m. – 9:00 p.m. Reception and Banquet	

Attendees must pre-register for the tours. Registration will not be available on-site. There will be a limit of 45 people for each tour so be sure to register early.

Tours will depart hotel on Monday, October, 31, 2005 at 12:30 p.m. and return at approximately 3:00 p.m.

Cost: \$25.00 per person

**Underwriters Laboratories Inc.**

UL is an independent, not-for-profit product-safety testing and certification organization. They have tested products for public safety for more than a century. Since their founding in 1894, they have held the undisputed reputation as a leader in product-safety testing and certification within the United States. Building on a household name in the United States, UL is becoming one of the most recognized, reputable conformity assessment providers in the world. Today, their services extend to helping companies achieve global acceptance, whether for an electrical device, a programmable system, or an organization's quality process. The tour will start at the main lobby and include the UL museum to learn about UL history and some of the activities in which they are engaged. Then you will be transported by bus to tour the Fire Protection Division and Large Scale Fire Testing Facilities where you will witness actual tests being conducted.

**International Truck - Melrose Park Tour**

Over one million mid-range diesel engines have been produced at the award-winning International Engine Plant in Melrose Park, Illinois. Melrose Park is the site of production for the all-new International DT466, DT570 and HT570 family of higher performing I-6 diesel engines for use in regional haul and medium trucks, school buses, fire trucks and off-road marine and agricultural equipment. The location is also the headquarters of International's Engine Group. It houses various areas of the Engine organization including Engineering Operations, Purchasing, Information Technology, as well as Manufacturing. Incorporated industry best practices into the manufacturing process, the Melrose Park Engine Plant continues to build on its rich heritage as a leader in design and manufacture of mid-range diesel engines

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### September 11, 2005 Autocross Results:

On Sunday, September 11, SAE and PCA co-hosted a Precision Driving School and Autocross Event. We had 40 drivers and more than 60 spectators participate. Special thank you's to **Kim Ingles** for organizing everyone, **Andy Berberich** for planning the event, **Boris Peharda** and **J.P. Granger** for speaking and mentoring drivers, and **Steve Davis, Marty Urbanc and Jim Roal** and all the **PCA and SAE Governing Board** volunteers for all their hard work planning and putting on the event.

Visit the PCA website for more photos and results: <http://ltr.pca.org/autocross.htm>

HEAT	Name	Car	Car #	FASTEST	
				TIME	
1	Doug Jacobsen	914	3	33.801	
1	Matt Shepherd	M-Roadster	1	35.017	
1	Amy Fluharty	911	297	35.106	
1	Bill Jankovsky	Boxster S	2	35.121	
1	Thomas J Houchin	NSX	67	35.584	
1	Jean-Philippe Granger	Protege Mazdaspeed	12	35.739	
1	steve jacobs	boxster	29	35.952	
1	Mark Bucheit	RX8	42	35.995	
1	Jeremy Hammar	RX-7	488	36.107	
1	Andy Berberich	944	227	36.186	
1	Jim Roal	944S	94	36.846	
1	Bryan White	Firebird	95	37.335	
1	Andy Reising	WRX wagon	99	37.538	
1	David Freeman	Trans Am	50	37.795	
1	Mikel Matthews	914	914	38.659	
1	alex Pedone	Mazda	77	38.824	
1	david kupper	924S	61	38.944	
1	Wayne White	911	76	39.973	
1	Darren Sawyer	944	14	47.600	
			<b>Ave</b>	<b>37.270</b>	

HEAT	Name	Car	Car #	FASTEST	
				TIME	
2	Neal Leifheit	911	792	33.852	
2	Joe Tauke	SRT4	41	33.878	
2	So Kikuya	R32	32	34.678	
2	Adam Cramsey	Corvette	3	35.498	
2	Benjamin Jansky	Neon SRT4	409	35.926	
	Marty Urbanc	NSX	67	36.035	
2	Andrew Sargent	GTI	22	36.367	
2	Steve Dougherty	GTI	25	36.502	
2	Fayz Khan	325is	69	36.572	
2	Brian Glass	RX-7	88	36.626	
2	Aaron Strauser	Corvette	98	36.878	
2	Jim Holeman	Mustang	38	37.516	
2	Mike Long	911SC	78	37.798	
2	Rex Glover	Camaro	33	37.821	
2	Michael Moffa	RSX Type S	314	38.108	
2	Cornelius Opris	Z4	24	38.547	
2	Kyle Kupper	924S	61	39.817	
2	Greg Gerantes	Z4	24	40.188	
2	Joe Miller	911	4	40.612	
2	Kerry DelVechio	A4	2	41.567	
2	Dana Sawyer	944	14	43.283	
2	Rudy Lenich	Escort	23	45.766	
			<b>Ave</b>	<b>37.902</b>	



[www.saesections.org/cis/](http://www.saesections.org/cis/)

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### Career Corner—“Mentoring Relationships for Career Development”

*Career Corner is provided by SAE and written by Tracy Fedkoe, Product Manager for SAE Career and Member Services. Below is the June 2005 edition of “Career Corner.” You can access “Career Corner” at any time by going to [www.sae.org](http://www.sae.org), and clicking on “Careers and Employment” in the upper right corner of the home page.*

#### **Mentoring relationships for career development**

When companies hire a new employee, they often have a formal program for getting the new hire up to speed. These orientation programs often focus more on coaching and training employees rather than mentoring them. What is mentoring? According to Rex Gatto, Ph.D., owner of a consulting firm specializing in organizational analysis, personal assessment, and training and development, mentoring is a philosophy and developmental process that enhances potential ability within the employee or person. Coaching, more similar to training, is situational and focused on a certain skill set to achieve success in that area.

While new team members definitely need coaching or specialized training to meet their job expectations, mentoring is equally important in developing future leaders in any structure—whether it is a company, volunteer organization such as a committee or local SAE section, or community group.

Mentoring can be done by anyone, at any time, in almost any situation. Mentoring can take the form of a one-shot intervention or a lifelong relationship. It can be carried out informally as an element of friendship, or formally, as part of a highly structured employee orientation program. Mentoring is a process whereby two people work together to discover and develop the mentee’s abilities to encourage them to acquire knowledge, skills, and experience. While it takes two to make a successful mentoring relationship, mentoring goes above and beyond an assigned task or relationship, where it often fires a spark within us to open new doors and awaken and encourage our potential. The effective mentor does not take charge of the mentee. Often the worst thing a mentor can do is to, “Let me tell you how it was done when I was starting out.”

Most structured mentoring processes generally go through the four-phase cycle:

- **Initiation**—where you set goals for the relationship and build rapport
- **Cultivation**—where you develop and implement an action plan
- **Separation**—where the mentee assumes more responsibility on his/her own
- **Autonomy**—where the mentee transitions to becoming a coach and mentor to someone else.

The structured mentoring process is a bit out-of-date in today’s fast-paced culture. Although supervisors, presidents, and parents can be highly successful mentors, mentoring does not just come out of a structured hierarchy. Mentoring relationships can develop based on a simple need to find a new leader or person with the right skills to fill an open position. Mentoring is getting people to believe in themselves and helping people to understand what their strengths are. The ability of the mentor to ask the right questions is key to discovering what the needs of the mentee are and what they have to offer the organization. The second requirement is providing the right feedback in a positive way.

SAE can be an excellent forum to foster mentoring relationships. We often develop relationships outside of our employers because of our common interest in mobility engineering. While a mentoring relationship may not be formal and structured, it may be even more valuable for career development. If there is a new member on your committee, a new section officer, or student at your alma mater, think of ways that you can help foster that relationship to make a difference in someone’s career. You will gain by giving back to your industry, and they, in turn, will grow to be in a position to give back some day as well.



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**The SAE Story Available through CIS:**

CIS has arranged for *The SAE Story: One Hundred Years of Mobility* to be available for sale at the section meetings. Member price is \$24, and by purchasing it at the meeting, you avoid shipping and handling charges. This is a great gift for anyone on your holiday shopping list. Contact Andrea Brazzale at [cis\\_sae@yahoo.com](mailto:cis_sae@yahoo.com) or 800-512-1919.

*The SAE Story: One Hundred Years of Mobility* combines an iconic collage of 20th-century popular culture with a view to the future role SAE International will play at the forefront of technical engineering advances -- advances that again will ultimately help to shape the world in which we will live.

True to the rich genre of "coffee-table books," *The SAE Story* is filled with archival images, historical background, and is punctuated with the personalities and pivotal moments in transportation technology. As told by Robert Post, a former transportation curator at the Smithsonian Institution and author of more than a dozen titles including *Technology, Transport, and Travel in American History* and *High Performance: The Culture and Technology of Drag Racing*, household names such as Henry Ford, Orville Wright and Mario Andretti become the architects in the building of an industry.

