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Visit our website for more information about CIS and SAE.



The CIS-SAE Governing Board would like to extend our best wishes to everyone this holiday season.



December marks the mid-point of our year, and we've had an exciting fall. But look ahead to what we have planned for CIS this spring!

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**Upcoming Program Topics**

**January:**

The Technology of Remanufacturing  
Kevin R. Thieneman, Remanufacturing General Manager, Caterpillar Inc.  
Tuesday, January 31, 2005

**February:**

Engineers Day, Lakeview Museum

**March:**

NASCAR Nextel Cup Engine Development  
Chuck Jenckes, Engine Development Engineer, Dale Earnhardt, Inc.  
<http://www.sae.org/globalsections/sections/localactivities/experts-jenckes.htm#abstract>

**April:**

Leadership Development Seminar  
Co-hosted with the Society of Women Engineers

**May:**

The Columbia Accident Investigation and the NASA Return to Flight  
Bryan A. Palaszeuwski, NASA John H. Glenn Research Center  
The Challenger Learning Center, Bloomington

### November Meeting Recap: Geoff Turck and the ICC Student Design Competition

#### **Caterpillar's Geoff Turck Speaks to ICC Students at SAE Student Design Competition**

The Central Illinois Section of Society of Automotive Engineers (SAE) held its 6<sup>th</sup> annual ICC Student Design Competition November 17, 2005. This year's challenge: build a trebuchet (gravity-powered catapults used in the Middle Ages to lay siege to castle walls). Geoff Turck, General Manager of Caterpillar Remanufacturing Services, spoke to the students about how his involvement with SAE has made him a better engineer and helped his career.

Geoff started out his talk dressed as the stereotypical engineer—pocket full of pens, thick coke-bottle glasses—speaking about things like “modulus of elasticity” and “bolted joint theory.” Shortly into his talk, he tossed the glasses one way, threw the pens down on the floor, and let his true personality shine through.

Geoff described engineering as “making stuff faster, making it work better, making it cost less....in short, making things people never before dreamed possible.” He had three rules about engineering:

1. “Nothing is nominal”: if your head is in the icebox and your feet are in the oven, nominally, you are comfortable. But nothing we design experiences a nominal environment
2. “Set screws suck”: they defy bolted joint theory, and are not very robust as a design. His point is that if you defy the laws of physics, you loose. Don't ask something to do something it cannot do.
3. “You can't push a rope,” but we come up with designs again and again that try.

He added two bonus rules:

- a) In a team, being right doesn't matter if you cannot convince anyone else
- b) Lean to speak the language of business (i.e. turning engineering ideas into money)



Geoff described his past SAE experience. He participated in the SAE Supermileage competition and said that he “would not have made it through school without SAE.” He did not care for schoolwork, but he loved to work on cars. SAE helped him take what he learned in the classroom and bring it to the garage. He also credited his involvement with SAE for teaching him how to work on a team. As a result of his team's Supermileage success, he was invited to give a presentation at a Detroit SAE Section meeting. At that meeting, a vice president of Chrysler introduced himself to Geoff and offered him a job. While Geoff did not take advantage of the offer at that time, he was able to later utilize that contact to gain employment at DiamondStar Motors.

Geoff has gained much from his involvement with SAE, and his talk to the ICC students aimed to inspire the same engagement in activities and organizations that provide life-long educational experiences.

#### **Student Design Competition Results:**

CIS held its 6<sup>th</sup> annual ICC Student Design Competition November 17, 2005. CIS provides prize money, and the ICC professors incorporate it into their “Engineering 101” curriculum. The winners:

- 1<sup>st</sup> place: Jason Knowles and Nathaniel Petersen, 18+ meters, \$125 cash prize  
 2<sup>nd</sup> place: Andy Nevitt, Seth Thompson and Bret Diltz, 17+ meters, \$75 cash prize  
 3<sup>rd</sup> place: Garrett Long and Peter Smit, 16+ meters, \$50 cash prize  
 Best Design: Adam Tigie and Sean McKean, \$50 cash prize

Special thanks to judges Geoff Turck, Wayne Baumberger, and Bruce Stott. To see the Peoria Journal-Star story, visit: [http://www.pjstar.com/stories/111805/TRI\\_B85MR4SD.004.shtml](http://www.pjstar.com/stories/111805/TRI_B85MR4SD.004.shtml)

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### Student Chapter Donations and Matching Contributions

The two universities in our section, Bradley University and the University of Illinois at Urbana-Champaign, have active SAE Student Chapters that participate in SAE Collegiate Design Series competitions. Many of the chapter's activities, specifically the Formula SAE and SAE Mini Baja programs, give young engineers hands-on experience in the design, build, and development process. Current teams are in full swing, and now is the perfect time to support local education. Many of the participants will be future engineers in the off-road equipment industry, and donating is a great way to fuel student and corporate growth.



Many companies have donation matching programs to make your contribution go farther. The Caterpillar Foundation has a program for Caterpillar employees to get their contributions matched, regardless of SAE membership:

1. Fill out the Caterpillar Foundation matching funds form. Under "Purpose of Gift/Gift Designation," specify "SAE Mini Baja" or "Formula SAE." There is an account setup for each. Under organizational information, indicate which university will receive your donation:

University of Illinois Foundation  
Attn: Matt Wilson  
1305 West Green Street, MC-386  
Urbana, IL 61801

or

Gift Records, Bradley University  
1501 W. Bradley Avenue  
Peoria



"CAT Matching Gift Form.pdf"

2. Make check payable to University of Illinois Foundation or Bradley Fund. Please designate "Formula SAE" or "SAE Mini Baja" in the memo.
3. Send check and form to the addresses above. For the February 15, 2006 match, the contribution needs to be made by the end of 2005.

Please note that it is possible to contribute your gift on-line at the following websites, but the Caterpillar Foundation matching funds form must still be sent by mail.

<http://www.giving.uiuc.edu>

<http://www.bradley.edu/development/onlinegifts/index.shtml>

**Thank you in advance for your support!**





# Central Illinois Section

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### Commercial Vehicle Congress 2006 Call For Papers

**2006 SAE Commercial Vehicle Engineering Congress and Exhibition**  
**October 31 - November 2, 2006**  
**Donald E. Stephens Convention Center in Rosemont, Illinois**

The members of the Commercial Vehicle Engineering & Operations Activity (CVEO) and Farm Construction and Industrial Machinery (FCIM) of the SAE Engineering Meetings Board and EMB Land & Sea Group are in the process of developing technical sessions for the 2006 SAE Commercial Vehicle Engineering Congress, Authors are invited to submit abstracts of approx. 300 words, including title and author contact information, by March 3, 2006. Abstracts can be submitted online at: [www.sae.org/events/cve](http://www.sae.org/events/cve)

Abstracts are being invited on design, manufacture, operation and maintenance of heavy, medium, and light duty commercial trucks, buses and equipment. This event will cover all on-road and off-road applications for commercial vehicles with emphasis on the tracks:

Main Technical Program Themes:

Electronics, Fluid Power, Maintenance, Powertrain, Safety and Executive Management

Suggested paper topics (for both on-road and off-road) are listed below:

- Autonomous Vehicles
- Braking & Steering Systems
- Chassis & Suspension Systems
- Design / Simulation / Modeling
- Diagnostics / Prognostics / Asset Management
- Driveline
- Engine / Engine Controls / Alternate Propulsion / Hybrids
- Emissions & Environment / Fuel Economy
- Electrical Systems / Higher Voltages
- Electronics / Software / Onboard Diagnostics
- Global Standardization / Harmonization
- Hydraulics / Electro Hydraulics / Fluid Power
- Materials / Alloys / Lightweight Materials
- Manufacturing
- Military Applications
- Noise & Vibration
- Operator Environment
- Safety
- Systems Engineering
- Transmissions

Abstracts including title, author's name, mailing address, phone/fax numbers, and e-mail address should be submitted by March 3, 2006. Abstracts may be submitted online: [www.sae.org/events/cve](http://www.sae.org/events/cve)

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### Career Corner—“Powerful Presentations”

*Career Corner is provided by SAE and written by Tracy Fedkoe, Product Manager for SAE Career and Member Services. Below is the January 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.*

#### **Powerful Presentations**

For many of us, public speaking is one of our top fears, right next to heights and financial debt. While most of us think that mastering the art of effective public speaking is limited to those with a special gene, it is definitely something that can be learned, and if learned well, it can take your credibility and career to new heights.

#### **Start with a strategy**

Just like any project, make sure to develop a strategy, and gear your presentation accordingly. Ask yourself “What do I want to accomplish?” Whether your mission is to inform, persuade, motivate, or entertain, you also need to consider the audience and their goals for attending. Two of the top mistakes made by presenters include not adequately preparing and not tailoring the information to the needs and demographics of the audience.

#### **Maintain your theme**

Establish a central theme for your presentation and develop your speech around supporting that focus. Start with the big picture then follow with details. Nearly 70% of people first process information globally, so you’ll grab the attention of most of your audience if you start this way. Tell your audience what you are going to talk about, be direct and interesting, and always come back to your central theme.

#### **Be a teacher, not a preacher**

While your style and delivery are key, it is more important that your audience gains something and understands the material you are presenting. Be a teacher, not a preacher. If you start off enthusiastic, so will your audience. Studies show adults learn through involvement so make sure you follow these rules of thumb when presenting your material:

- Link your content to experiences or anecdotes
- Show how your information can help solve a problem
- Get them involved after no more than 20 minutes of talking. Ask the audience for input to help you make a point, or discuss a concept with their peers for 5 minutes if you don’t have a planned activity as part of your presentation.

#### **Keep it simple**

Try to stick to three main points that relate to your theme and keep them concise. You wouldn’t want to read a fifteen page newspaper article when the subject could have been summed up in a few paragraphs. Categorize information into “need to know”, and “nice to know” and eliminate any information that the audience doesn’t really need to hear. You may want to include more detailed information in handouts with web addresses and references. Information overload is one of the main reasons why audiences tune out a speaker.

#### **Driving the point home with visuals**

The information will not speak for itself no matter how breathtaking it is—you will need to deliver it to your audience in a way they can understand it. The content of the information (what you say) only contributes 10% to message believability, whereas how you say it counts for 40%. How you look and act when communicating your point contributes a huge 55% to message believability. Visuals support your message and are important to help keep the audience interested and retain the information you present. Some rules of thumb for preparing visuals include:

- Use a slide design master and keep that throughout your presentation
- Keep to one main message per slide
- Strive for only 3-6 bullets per slide
- Don’t use more than two fonts and 3-4 colors
- Use 24 point type (minimum) for headline or main message and no less than 18 point for text

If your information can be presented visually better than text, use a chart, graph, or photo. When presenting this information, don’t tell what it is, show what it means.

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



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## The home stretch

Each presentation should have an effective closing. Bookend your presentation with a good first impression and quick overview, a smooth transition to the meat of your topic, and a strong closing where you leave the audience excited. A question and answer period, if permitted, always adds for good dialogue, a chance to reaffirm your point or opinion, and also to receive feedback from your audience.

Creating a great presentation comes down to three major steps:

**Prepare** – know your subject, know your objective, consider the audience, and present the big picture first

**Design** – organize the material, keep it simple, use visuals to help deliver, and bookend your talk

**Deliver** – rehearse, check the room and equipment, be enthusiastic, adjust to audience body language and feedback, make a strong closing, and hear the applause!