



THE “AHA” MOMENT STARTS WITH YOU

2015 SAE FOUNDATION ANNUAL CELEBRATION

Honoring Sergio Marchionne

Chief Executive Officer
Fiat Chrysler Automobiles N.V.

2015 Host
Company:



HERE'S TO MOVING THE AUTO INDUSTRY FORWARD.

Congratulations to Sergio Marchionne for being honored with the Industry Leadership Award.



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WELCOME...

What's the first "aha!" moment you've witnessed in your life? Was it a child discovering that an empty box can be imagined to be anything from a rowboat to a spaceship? Was it a young boy feeling the freedom of a bicycle, minus training wheels or Dad's steady hand on the back of the seat? Was it a young girl in safety goggles imagining that the volcano she has finished at the kitchen table will win first prize at the science fair?

Each of us sees the joy of discovery in so many ways throughout our lives. And that joy of discovery, of learning and growing, is exactly at the core of the work of the SAE Foundation. These "aha" moments are the results of the basics we teach students through the A World In Motion®, F1 in Schools™, and Collegiate Design Series™ programs, and the "aha" moments can lead to a lifetime love of science, technology, engineering and math.

Your support of the Foundation and SAE's educational programs is critical to the future of the global automotive, aerospace and commercial vehicle markets. In classrooms around the world, SAE-trained educators are addressing the crisis in STEM education, bringing to life these basic STEM principles through creative and fun projects that encourage discovery, creativity and innovation. So many "aha" moments can begin at the very point you provide your support.

Tonight, we pay tribute to leadership, dedication and service with Mr. Sergio Marchionne of Fiat Chrysler Automobiles receiving the prestigious Industry Leader of the Year Award. We honor GM executive and former Foundation Chair Mark Johnson with the Don Ableson Award for his dedication to SAE over many years. The Gordon Millar Award – recognition for a company's philanthropic support – goes to Kia Motors Manufacturing Georgia. We also will acknowledge the future through our Young Industry Leader awardees, Maria Christina Herrera of Caterpillar and Dr. Scott Curran of the Oakridge National Labs. We will also take a moment for special recognition of Don Ableson and his 15 years of service to SAE Foundation Canada.

Most importantly, we honor those of you who help make real the work of the Foundation. You may be a volunteer, a donor, a teacher, an executive, or a company that has been generous in your support. Individually and collectively, the future STEMs from you. You are helping us as we help young people discover the joy in learning. For that, we salute you, and we thank you.

Together, we can look forward to many more years of successfully giving our children the drive, desire and joy for inventing the future. Tonight, we celebrate the "aha" moments in life... many of which begin with you.

Thank for you being here. Enjoy!

Mazen Hammoud
Chairman
SAE Foundation Board of Trustees

Karen L. Healy & Joyce Weishaar
Co-Chairs
2015 SAE Foundation Annual Celebration



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AGENDA

Master of Ceremonies

Daniel Howes, The Detroit News

Welcome and Introductions

Dinner

Presentation of Gordon Millar Award

2015 Recipient

Kia Motors Manufacturing Georgia (KMMG)

Sponsored by



Presentation of Donald W. Ableson Award for Visionary Leadership

2015 Recipient

Mark A. Johnson

Presentation of Stefan Pischinger Young Industry Leadership Awards

2015 Recipients

*Maria Cristina Herrera
Caterpillar Inc*

Scott Curran

Oak Ridge National Laboratory

Sponsored by



Presentation of SAE Foundation Industry Leadership Award

2015 Recipient

*Sergio Marchionne
Chief Executive Officer
Fiat Chrysler Automobiles N.V.*

**LEARNING
AT THE SPEED
OF LIGHT.**



General Motors is a strong believer in expanding STEM education for our youth. And we proudly support the SAE Foundation in encouraging young students to participate in the sciences. Thank you for introducing kids to a lifelong love of learning.

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- DSM Engineering Plastics - Americas
- Hella
- IAV Automotive Engineering, Inc.
- OESA
- Society of Plastics Engineers
- Styron LLC
- The Goodyear Tire & Rubber Company
- Wellman Engineering Resins
- Woodbridge Foam



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MENTOR SPONSORS

The following companies have expressed their commitment to nurturing emerging engineers by agreeing to be Mentor Sponsors. Mentor Sponsors provide an opportunity for college students to attend this evening and to network among industry executives. Mentor Sponsors share their tables with five college students who aspire toward careers in engineering.



2015 SAE FOUNDATION CHAIRMAN'S CIRCLE



The SAE Foundation is honored to have these companies bear the distinction of admission to the Chairman's Circle in recognition of their support of the Foundation's programs and goals. Each company has supported our efforts with a minimum gift of \$100,000 to the Foundation over the past year. For your support, we salute you. For your passion, we thank you.



Thanks to the SAE foundation, The future looks bright!

**YOUR DEDICATION TO SCIENCE AND TECHNOLOGY EDUCATION
INSPIRES US ALL.**

Our industry is highly dependent on the next generation of engineers to lead us into the future. Thank you, SAE Foundation, for encouraging young people to participate and excel in science, technology, engineering and math (STEM), and showing them the promise and possibilities of our dynamic industry.

THE GORDON MILLAR AWARD

The Gordon Millar Award is issued to provide special recognition of the individual or organization that best demonstrates continuous philanthropic support of the SAE Foundation's mission to encourage and increase student participation and achievement in science, technology, engineering, and mathematics. The award is funded by AVL.

Sponsored by:



Past Recipients:

- 2014 Toyota USA Foundation
- 2013 GM Foundation
- 2012 Dan and Vicky Hancock
- 2011 Arne and Steffi Siegel

Kia Motors Manufacturing Georgia (KMMG)



Randy Jackson
KMMG

Kia's commitment to the community was evident even before its team members began manufacturing vehicles in their new Georgia plant. Kia Motors Manufacturing Georgia (KMMG) began investing in education during

construction of the West Point, Georgia facility in 2008. And, three years after their first conversations with the SAE Foundation in 2012, KMMG has renewed their commitment to the award-winning A World In Motion® program to further advance STEM education with a gift of \$1.2 million. Innovation and continuous improvement are key elements of the company's Kia Way philosophy and the A World In Motion program exemplifies these principles in its curriculum design and delivery, as well as in its ability to create the next generation of innovators.

"We are excited to continue our partnership with SAE and for all of the students in our region to join those who have already been benefitting from this fantastic program," said Randy Jackson, KMMG's senior vice president of human resources and administration. "This curriculum is making a big impact, and as a learning organization, Kia understands that the students of today will be our workforce of tomorrow."

By investing in SAE's AWIM program to benefit four entire school districts in its region over the next three years, Kia is ensuring that students in both Georgia and Alabama are not only prepared to be future team members, but they will also enrich their communities by being excellent problem solvers and analytical thinkers: innovators who provide practical solutions to everyday problems.

The SAE Foundation will use the gift from KMMG over the next three years to provide services to the school systems through the implementation of the AWIM program in classrooms, along with teacher education and volunteer support.

"Our team members take great pride in Kia serving as a responsible and respected citizen in the local community, especially when it comes to youth education. This pledge to fund the AWIM program allows KMMG to uphold the Kia Way, which challenges us to work together to make today better than yesterday," Jackson said. "SAE's proven reputation and the experience it has working with the automotive industry were key factors in forming this partnership."



**FROM ONE INNOVATOR
TO ANOTHER, CONGRATULATIONS.**

Nissan is proud to support the SAE Foundation
and its ongoing contributions to science and
technology education.

Nissan. Innovation that excites.



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THE DONALD W. ABLESON AWARD FOR VISIONARY LEADERSHIP

- Recipient must have more than 20 years of service to the mobility community, representing industry, academia or government and must have made notable contributions serving in a leadership capacity.
- Recipient must have served on the SAE Foundation Board or the SAE Foundation Canada Board of Directors for more than 3 years or be a leader who has made significant contributions toward improving science, technology, engineering and math (STEM) education.
- Recipient must have led at least one initiative that resulted in noteworthy advancements of the SAE Foundation's mission.

Past Recipients Include:

- 2014 Joseph B. Anderson Jr., TAG Holdings LLC
- 2013 Neil A. Schilke, Schilke Systems Engineering, LLC
- 2012 Joseph M. Colucci, Automotive Fuels Consulting
- 2011 Rodica Baranescu PhD, Navistar International Corp. (Retired)
- 2010 Daniel M. Hancock, General Motors Corporation
- 2008 Arnold W. Siegel, UCLA (retired)
- 2007 Neil De Koker, Original Equipment Suppliers Association
- 2006 William T. Birge, Honeywell (retired)
- 2005 Fred Nader, AutoTech Technology Development, Inc.
- 2004 Raymond A. Morris, SAE International
William G. Agnew, General Motors Corporation (retired)

The SAE Foundation would like to recognize Mr. Don Ableson. Fifteen years ago Don helped create the SAE Foundation Canada and has served as the Chair since its inception. Don has been selfless in his service to Canada and for that we want to say Thank You.



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**drive
innovation**

2015 RECIPIENT OF THE DONALD W. ABLESON AWARD FOR VISIONARY LEADERSHIP



Mark A. Johnson

Mark A. Johnson, P.E. is the Operational Excellence Champion for General Motors Global Product Integrity organization, where he leads the deployment of structured problem solving tools and methods to improve product development operations

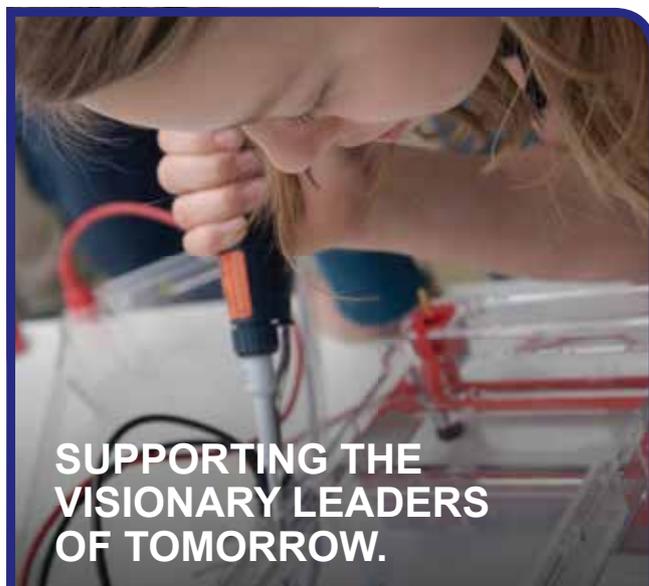
and results. Johnson's 33-year career with GM spans two continents and a variety of leadership roles in vehicle engineering, development, quality and program management, and chief engineer for the 2009 Open Insignia, which was named European Car of the Year.

Johnson's commitment to SAE has been as broad and deep as his career. An SAE member for 32 years, he most recently served as Chair of the SAE Foundation Board of Trustees. During his tenure, and despite a lingering economic crisis, he helped establish a strategic plan, guided its execution, and set new fundraising records in support of SAE's award-winning STEM education programs. Johnson has also served as a member of SAE's Board of Directors as well as the Finance Committee, Bylaws Committee, Education Board, Sections Board, and Motor Vehicle Council. He is a past-chair of the Mid-Michigan SAE Section.

Johnson received his MBA degree cum laude from the University of Michigan in 1990. He is a member of Beta Gamma Sigma, the business academic honor society. Johnson received his Bachelor of Science degree cum laude in Mechanical Engineering from General Motors Institute (now Kettering University) in 1984. He is a member of Tau Beta Pi, the engineering academic honor society and Pi Tau Sigma, the mechanical engineering honor society. He received the prestigious Albert Sobey Memorial Award for his leadership and scholarship. He remains active with his alma matter and serves on the Board of Directors of the Kettering/GMI Alumni Association.

Johnson enjoys spending time with his wife, Amy, and their two children. His daughter is a 2015 graduate of the Stephen M. Ross School of Business at the University of Michigan. His son is pursuing an engineering degree from the University of Michigan.

Mr. Johnson is a licensed Professional Engineer in the State of Michigan and a member of the United States Coast Guard Auxiliary.



SUPPORTING THE VISIONARY LEADERS OF TOMORROW.

Faurecia is proud to support the SAE Foundation and its STEM programs. We offer our congratulations to Sergio Marchionne and all those being honored. We look forward to the challenges ahead as your "a-ha" moments change our industry.

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LOCATIONS

1
PASSION

2015 RECIPIENT OF THE STEFAN PISCHINGER YOUNG INDUSTRY LEADERSHIP AWARD

Sponsored by:



The Stefan Pischinger Young Industry Leadership Award recognizes industry professionals with less than 12 years of industry experience, who have significant accomplishments and potential for leadership growth.

Past Recipients:

- 2014 Dr. Yanping Xia (Delphi Automotive Thermal Systems) and Sridhar Raveendran (Caterpillar Electronics)
- 2013 Adam Timmons, PH.D. (Chrysler Group LLC) and Kaustav Sinha, Ph.D. (The Dow Chemical Company)
- 2012 Shady El Safty (General Motors) and Kumar Prasad Telikeypalli (Eaton Corporation)
- 2011 Stacy Martin (General Motors) and Jennifer C. Wheeler (AVL Powertrain Engineering, Inc.)

Dr. Maria Cristina Herrera



Senior Engineer
Caterpillar Inc.

A strong leader from the start of her career at Caterpillar Inc., Dr. Maria Cristina Herrera has led a global, cross-functional team charged with the creation of a technology roadmap for a multibillion dollar business opportunity. Colleagues say she repeatedly exceeds expectations

by developing new methods, and also training others to replicate her success. She is an advocate for STEM education through leading the first two annual Capstone Projects with UTEC, a technical university established in Peru in 2011. She has won three awards granted at the department level, two for delivering high business impact results, one for outstanding leadership.

In delivering the technology roadmap, Dr. Herrera led a team to define a progression of technology developments,

including four new technology projects. She conducted a competitive assessment within this technology area that initiated the expansion of an external partnership.

“Our project had to have effective team meetings to deliver a comprehensive, information-rich roadmap with clear technical and business objectives,” she says. “We also formed a network that will continue to collaborate in executing and refining this roadmap, and I will continue to mentor the project leaders in the process we developed to create the roadmap.”

In 2012, Dr. Herrera documented a tire simulation process to enable accurate machine load predictions, and in 2009 she completed 13 product improvement projects involving structural evaluations and fatigue analyses on final drives, machine concepts and earthmoving blades. In doing so, she established breakthrough improvements to FEA processes for Fatigue of Light Fabrications and Bolted Joints that are standard practices today.

Dr. Herrera has received the Caterpillar Inc. Leadership in Action Award; and was selected to attend the 2014 Building Business Expertise Program at Bradley University. She also has received Caterpillar, Inc.’s Mountain Mover Award for 2012 and 2013.

Her involvement with SAE includes leadership of the first two Capstone Projects with Universidad de Ingenieria y Tecnologia (UTECH) in Peru for a STEM/Customer/Dealer Initiative. She is a member of the Geolatina Association of Geotechnical Engineering professors and researchers from Latin America; the Society of Women Engineers; and represents Caterpillar to the CRC Mining “Hard Rock and Surface Mining” subcommittee.

Maria Cristina attended Universidad De Los Andes (Colombia), receiving a Bachelor’s degree in Civil Engineering as well as a Masters and Doctorate of Geotechnical Engineering. During her PhD, she worked as a researcher in the Particulate Media Research Laboratory at Georgia Institute of Technology. In 2013, she attended Bradley University’s “Building Business Expertise” Program. She has worked for Caterpillar since 2007.



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2015 RECIPIENT OF THE STEFAN PISCHINGER YOUNG INDUSTRY LEADERSHIP AWARD

Sponsored by:



Dr. Scott Curran

Research & Development
Oak Ridge National
Laboratory

Recognized for exceptional promise in leadership in the field of sustainable transportation, Dr. Scott Curran is committed to outreach and public education for alternative

fuels and advanced vehicle technologies.

Dr. Curran joined Oak Ridge National Laboratory (ORNL) as a post-masters research fellow in 2009 following an internship in the Fuels, Engines and Emissions Research Center. He became a member of the ORNL research and development staff in early 2012. Curran became one of the first two graduates of the joint University of Tennessee/ORNL Bredesen Center for Interdisciplinary Research and Graduate Education. As a research fellow, he supported a critical Department of Energy milestone to demonstrate brake thermal efficiency on a light-duty passenger engine. He received an ORNL significant event award for his contributions. He is now the principal investigator for two advanced combustion engine programs and leading a research team with responsibility for several DOE milestones related to the development of advanced combustion concepts and the investigation of fuel effects on advanced combustion.

Dr. Curran's efforts have been recognized by the U.S. DOE in 2013 for his leadership in transitioning RCCI combustion from a single cylinder to a multi-cylinder engine using bio-renewable fuels. He received the SAE Forest R. McFarland

Award in 2015 for innovation in the development of a new SAE young professional initiative to improve the interaction of young SAE members with leading SAE professionals. Scott has also received an SAE Engineering Meetings Board Outstanding Oral Presentation Award, and he was an SAE SOLS awardee while a student. Scott has been recognized for his commitment to outreach and education through a 2013 ORNL Community Sustainability Award, an ET Clean Fuels (DOE Clean Cities) Volunteer of Year in 2008, and was the leader of an ORNL Davey Crockett Leadership Award in alternative fuel use in 2014. Scott received the 2013 ASME Old Guard Early Career Award and the best presentation award in 2012.

Dr. Curran has been a member of SAE from the time he was a student at the University of Tennessee, where he chaired the campus chapter. He was involved with the AWIM activities at the Dept. of Energy Advanced Vehicle Technical Competition series as both a student and an advisor. He is the author of more than 14 SAE technical papers, a member of the Combustion Committee, an organizer for sessions at SAE Congress, and has been a speaker at multiple SAE events. He is also involved in public outreach events to help East Tennesseans understand the benefits and challenges of alternative fuels, hybrid and electric vehicles.

Dr. Curran received a Ph.D. in Energy Science & Engineering, as well as Masters and Bachelor's degrees in Mechanical Engineering from The University of Tennessee. He has worked for the Oak Ridge National Labs since 2009 and is currently a member of the R&D Staff there, where he is the principal investigator on two DOE advanced combustion research projects and works with other researchers/ staff on sustainable transportation projects.

Balance.

Through hands-on experience, guidance and mentorship Aisin understands the importance of a balanced and seasoned team.

Successful companies inspire excellence and future generations of leaders. They act responsibly and in harmony with the values of customers, suppliers, team members, and community.



Aisin stands proudly with the SAE Foundation for Science and Technology for the bridges it builds between industry and the community of young people.

Now in its 50th year, Aisin continues to support the principles and educational efforts of SAE, and proudly announces the recent appointment of Executive Vice president, John Clark, to the SAE Foundation Board of Trustees.



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INDUSTRY LEADERSHIP AWARD

The Industry Leadership Award recognizes individuals who have made meaningful contributions to the mobility industry. Nominees must have achieved the following:

- a significant level of success in their STEM careers
- demonstrated innovation and risk taking
- established a new direction or developed a position which challenged their industry
- made contributions outside of their industry, exemplified through community education, philanthropic or government activities

Past Award Recipients

- 2014 Osamu “Simon” Nagata, Toyota Motor Engineering & Manufacturing North America
2013 Mary T. Barra, General Motors
2012 Edsel B. Ford, II, Ford Motor Company
2011 John Krafcik, Hyundai Motor America
2011 Peter Marks, Chairman, President and CEO, Robert Bosch LLC
2010 Rodney O’Neal, Delphi
2009 Jim Press, Chrysler LLC
2008 Alan Mulally, Ford Motor Company
2007 Carlos Ghosn, Nissan Motor Co., Ltd.
2006 Robert A. Lutz, General Motors Corporation
2005 Dr. Shoichiro Toyoda, Toyota Motor Corporation
2004 J.T. Battenberg, III, Delphi Corporation
2003 Gary L. Cowger, General Motors Corporation
2002 Heinz C. Prechter, ASC Incorporated (posthumous award)
2001 Shamel T. Rushwin, Ford Motor Company
2000 Donald E. Hackworth, General Motors Corporation
1999 James J. Padilla, Ford Motor Company
1998 Dennis K. Pawley, Chrysler Corporation
1997 G. Richard Wagoner, Jr., General Motors Corporation

Inspiring a new generation of innovation.

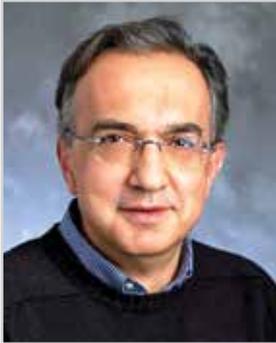


As a technology-driven company, BorgWarner actively invests in STEM education, igniting the spirit of innovation in students of all ages. We are proud of our long standing commitment to the SAE Foundation and their efforts to develop educational programs that lead to those truly AHA! moments.

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 **BorgWarner**

2015 RECIPIENT OF THE INDUSTRY LEADERSHIP AWARD



Sergio Marchionne

CHIEF EXECUTIVE OFFICER
FIAT CHRYSLER AUTOMOBILES N.V.

Sergio Marchionne is Chief Executive Officer of Fiat Chrysler Automobiles N.V. and Chairman of Ferrari S.p.A. He is also Chairman and CEO of FCA US LLC and Chairman of CNH Industrial N.V.

Born in Chieti (Italy) in 1952, he has dual Canadian and Italian citizenship. He holds a Bachelor of Arts with a major in Philosophy from the University of Toronto and a Bachelor of Laws from Osgoode Hall Law School at York University in Toronto, as well as a Master of Business Administration and a Bachelor of Commerce from the University of Windsor (Canada). Mr. Marchionne is a barrister, solicitor and chartered accountant.

He began his professional career in Canada. From 1983 to 1985, he worked for Deloitte & Touche. From 1985 to 1988, he was with the Lawson Mardon Group of Toronto. From 1989 to 1990, he served as Executive Vice President of Glenex Industries. From 1990 to 1992, he was Chief Financial Officer (CFO) at Acklands Ltd. From 1992 to 1994, also in Toronto, he held the position of Vice President of Legal and Corporate Development and CFO of the Lawson Mardon Group. From 1994 to 2000, he covered various positions of increasing responsibility at Algroup, headquartered in Zurich (Switzerland), until becoming its CEO. He then went on to head the Lonza Group Ltd, first as CEO (2000-2001) and then as Chairman (2002).

In February 2002, he became CEO of the SGS Group of Geneva. In March 2006, he was appointed Chairman of the company, a position which he continues to hold. From 2008 to April 2010, he also served as non-executive Vice Chairman and Senior Independent Director of UBS.

Mr. Marchionne became a member of the Fiat S.p.A. Board of Directors in May 2003, and Chief Executive Officer on 1 June 2004. In addition, in June 2009, he was appointed CEO of Chrysler Group LLC (renamed FCA US LLC in December 2014) and, in September 2011, also assumed the role of Chairman. On 13 October 2014, he became CEO of Fiat Chrysler Automobiles N.V. and Chairman of Ferrari S.p.A.

In May 2010, he joined the Board of Directors of Exor S.p.A. As of September 2013, he is also Chairman of CNH Industrial N.V., the company resulting from the mergers of Fiat Industrial S.p.A. and CNH Global N.V.

He is currently a member of the Board of Philip Morris International Inc. and the Peterson Institute for International Economics, as well as Chairman of the Council for the United States and Italy.

Mr. Marchionne is recipient of: ad honorem degrees in Industrial Engineering and Management from Polytechnic University in Turin (Italy) and in Economics from the University of Cassino (Italy), a Masters honoris causa in Business Administration from the CUOA Foundation (Italy), an honorary Doctor of Laws from the University of Windsor (Canada) and Walsh College in Troy (Michigan), and honorary doctorates in Business Administration from the University of Toledo (Ohio), in Science from Oakland University in Rochester (Michigan) and in Humane Letters from Indiana University Kokomo (Indiana).

Mr. Marchionne also holds the honor of Cavaliere del Lavoro.

THE TOTAL STEM SOLUTION

Bringing students, teachers and industry together for a more innovative future

1

K-3 PRIMARY

Four hands-on science and literature units that introduce the earliest of learners to science, technology, engineering and math (STEM) concepts.



2

ELEMENTARY 4-6

Uses more analytical skills to work through the Engineering Design Experience.



3

MIDDLE SCHOOL 6-8

Capitalizes on acquired problem solving skills and further illustrates the real-world application of age appropriate math and science concepts.



4

HIGH SCHOOL

The unique F1 in Schools™ Challenge introduces middle and high school aged students to the engineering process. From business planning, design, manufacturing, analyzing and marketing to racing, students get to participate in a true hands and minds-on activity.



5

COLLEGE

SAE Collegiate Design Series™ (CDS) is an interdisciplinary real-world learning experience that prepares both graduate and undergraduate students for the workforce.



6

PROFESSIONAL SUPPORT

Many industry professionals return to volunteer with the programs they credit for their success.



The spark of **innovation** helps
create our 'AHA' moments



WHY STEM MATTERS

Compared to other countries around the world, according to the World Economic Forum, the United States ranks:



IN EDUCATIONAL SYSTEM QUALITY.



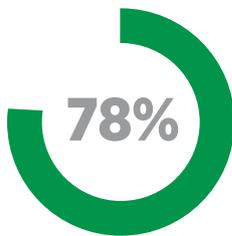
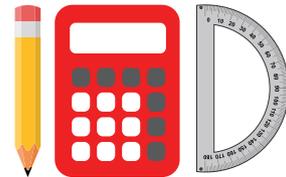
IN PRIMARY EDUCATION QUALITY.



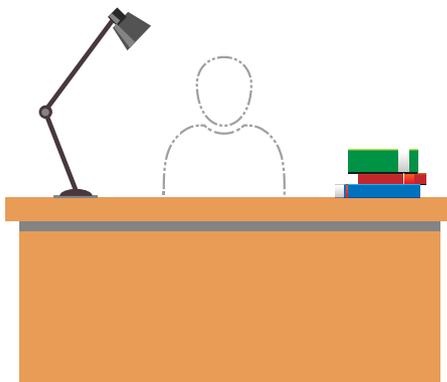
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ONLY 26% OF AMERICAN HIGH SCHOOL SENIORS ARE CONSIDERED PROFICIENT IN MATH.



78% OF AMERICAN HIGH SCHOOL GRADUATES DO NOT MEET THE STANDARD LEVELS FOR AT LEAST ONE ENTRY-LEVEL STEM COLLEGE COURSE.



THERE ARE NEARLY **3.7 MILLION** UNFILLED U.S. JOBS IN STEM FIELDS.

Early Dreams

BUILD BRIGHT FUTURES

Supporting tomorrow's scientists and engineers

Dow Automotive Systems brings together the art and science that results in breakthrough technologies for lighter, safer and more durable vehicles.

We proudly support SAE Foundation's STEM initiative that helps today's students become tomorrow's scientists and engineers.

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The Human Element at Work



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A WORLD IN MOTION

Primary School Challenges

The unique feature of this program is the use of portions of a problem-solving process employed by engineers working in teams. The “Engineering Design Experience” for Primary students consists of: Set Goals, Build Knowledge, Design, Build and Test and Present.

These activities for students in grades K-3 were developed through generous support from Nissan, North America.

Rolling Things

Launching cars from ramps, students investigate the effects of different ramp heights and car weights have on distance traveled, measuring and recording data gathered through variable testing.

Pinball Designers

Students design a homemade pinball game and explore the behavior of the different components, such as the pinball, ball traps, and bumpers.

Engineering Inspired By Nature

Students investigate methods of seed dispersal in nature and then use that knowledge to create paper helicopters and parachutes.

Straw Rockets

Students create a straw rocket that flies the farthest and highest through optimizing their own design.

Elementary School Challenges

Skimmer Challenge

Students construct paper sailboats and test the effects of different sail shapes, sizes and construction methods to meet specific performance criteria. Friction, forces, the effect of surface area and design are some of the physical phenomena students encounter in this challenge.

JetToy Challenge

Students make balloon-powered toy cars that meet specific criteria: distance traveled, weight carried, accurate performance and speed. Jet propulsion, friction, air resistance and design are the core scientific concepts students explore in this challenge.

Gravity Cruiser Challenge

Students focus on understanding the relationships between the “sweep” of a lever arm, the number of winds a string makes around an axle and the distance the gravity cruiser travels. Students also investigate how the diameter of the wheels and axles, and the amount of weight placed on the level, affect the gravity cruiser’s speed and distance. This challenge introduces a rich activity in critical thinking, and students learn how to use the experimental method to test hypotheses and solve a tricky engineering problem. This curriculum was developed through generous support from the GM Foundation.

Middle School Challenges

Fuel Cell Challenge

Student teams design a toy car that uses a PEM (Proton Exchange Membrane) fuel cell to power the electric motor. Elements of electrical currents, “Green Design” and transformations of energy are explored as the teams develop their project. This curriculum was developed through generous support from the GM Foundation.

Motorized Toy Car Challenge

Students develop new designs for electric gear driven toys. To meet a specific set of design requirements, students must write proposals, draw sketches and work with models to develop a plan. Force and friction, simple machines, levers and gears, torque and design are core concepts covered.

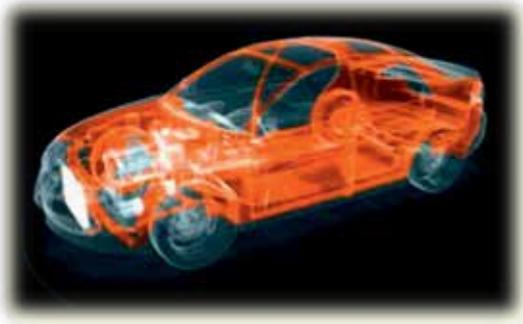
Glider Challenge

Students explore the relationship between force and motion and the effects of weight and lift on a glider. The glider activity culminates in a book-signing event where each design team presents its prototype, and the class presents its manuscript to Mobility Press “representatives” and members of the local community. Students learn the importance of understanding consumer demands and the relationships between data analysis and variable manipulations.

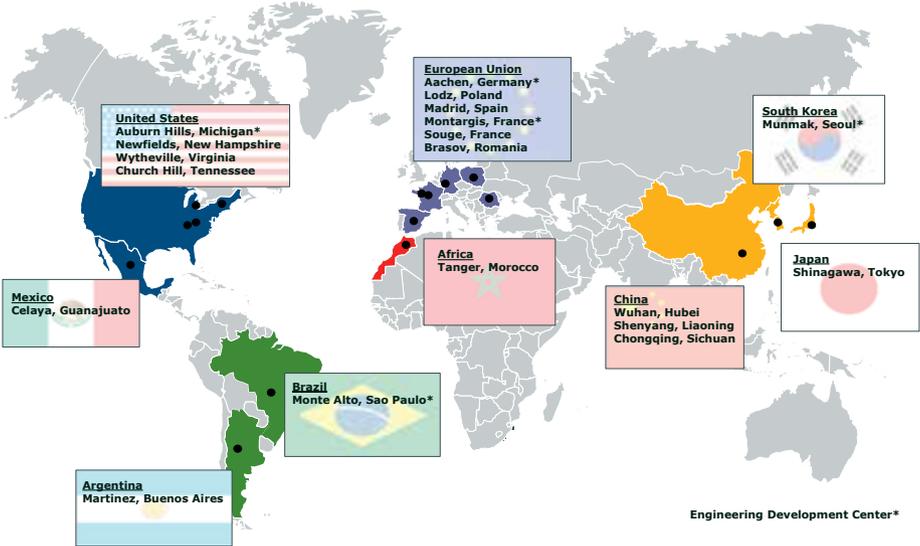
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High School Challenges

In the F1 in Schools® Challenge, groups of three to six students form a team, assume roles and prepare a business plan, develop budgets and raise sponsorships to support materials needed and team travel to regional and national competitions.



Using 3D CAD (Computer-Assisted Design) software the team designs a Formula One™ car of the future.

The aerodynamics of their design is analyzed for drag co-efficiency in a Virtual Reality Wind Tunnel using CFD (Computational Fluid Dynamics) software. Then, using 3D CAM (Computer-Aided Manufacture) software, the team evaluates the most efficient machining strategy to make the car out of balsa wood using a CNC (Computer Numerical Controlled) Router.

The CO₂ cartridge-powered cars are tested using wind and smoke tunnel equipment to fine tune designs to optimize speed and drag co-efficiency. The cars are put to the ultimate test on an elevated 24-meter track. During the race, teams are judged on car speed as well as supporting evidence of their design in portfolios. Each team's presentation and marketing display in 'the pits' are also factored into their performance.

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COLLEGIATE DESIGN SERIES PROGRAMS

The Collegiate Design Series™ (CDS) has set the standard for exceptional design competitions where engineering students obtain hands-on experience in the design, manufacture and testing of real vehicles. These college-level competitions have enhanced the educational experience of engineering students around the world and inspired the next generation of young talent.

These competitions include:

- **Formula SAE®:** The premier event for aspiring automotive engineers in which teams of college students design, build, and race mini-Formula-style race cars in either IC or electric class.
- **Aero Design®:** Teams of college students build and fly gas-powered aircraft models. The object of this competition is to design and build a model aircraft that can take off and land while carrying the predicted maximum cargo.
- **SAE Baja™:** These regional competitions pit student-designed off-road vehicles against one another, over rough terrain, and through water.
- **Supermileage®:** This competition provides students with the opportunity to set world fuel economy records while earning practical experience in design and fabrication. Some student-designed vehicles have delivered in excess of 2,000 m.p.g.
- **Clean Snowmobile Challenge®:** This competition provides students with the opportunity to design and build snowmobiles that perform at the same level as stock snowmobiles, but are “cleaner” and quieter.



ADVANCING THE SOLUTION

Pushing for Excellence

SAE International and the SAE Foundation recognize the efforts of mobility industry professionals, STEM educators and both undergraduate and graduate students who have excelled in their areas with a robust Awards & Scholarships program.

SAE Medal of Honor

Established in 1986, this award recognizes and honors a living SAE member for unique and significant contributions to SAE which strengthen or add to SAE's ability to further its purpose. The significance of such contribution(s) shall have been tested over time and shall be regarded as a major factor in SAE's success. SAE Past Presidents are eligible for this award, but the contribution(s) for which they may be nominated must have been initiated and proven as major factors to SAE's success after their term of office has been completed; any initiated prior to, or during their Presidential term, are not acceptable as the basis for nomination.

A4A/SAE NDT "Better Way" Award

The A4A/SAE NDT Better Way award is sponsored by Airlines for America (A4A) and SAE International. The "Better Way" award recognizes a government-industry team that has developed and applied a technology, technique, process, or policy that advances inspection or test of civil/commercial aircraft structure, aircraft components, or aircraft systems. Improvements will be assessed as a function of process sensitivity, reliability, and cost effectiveness.

SAE/Arnold W. Siegel Humanitarian Award

Established in 2014, and made possible by a generous gift from Arnold and Stephanie Siegel, this award proudly represents members and non-members of the Society whose mobility industry contributions have made a lasting social benefit on humanity. The award will honor individuals, teams, organizations or entities, both domestic and internationally, whose mobility industry contributions - research or practical application - have made a significant, positive, multi-generational impact on the world such as, but not limited to: mobility safety or the environment, creating a safer, healthier world.

SAE/Magnus Hendrickson Innovation Award

This award honors renowned inventor and businessman Magnus Hendrickson, who founded Hendrickson Motor Truck Company in 1913, by recognizing individuals or teams (SAE members or non-members) whose efforts in commercial vehicle dynamics represent true innovation and have created significant, lasting change in the commercial vehicle industry.

Other Awards Include:

Ableson Award for Visionary Leadership
Arch T. Colwell Cooperative Engineering Medal
Arch T. Colwell Merit Award
Arnold W. Siegel International Transportation Safety Award
Award for Research on Automotive Lubricants
Barry D. McNutt Award for Excellence in Automotive Policy Analysis
Bill Agnew Award for Outstanding AWIM Volunteers
Charles M. Manly Memorial Medal
Clarence L. (Kelly) Johnson Aerospace Vehicle Design and Development Award
Cliff Garrett Turbomachinery Engineering Award
Daniel Guggenheim Medal
Distinguished Section Member Award honoring Noble R. Patterson
Distinguished Younger Member Award honoring Edward N. Cole
Edward N. Cole Award for Automotive Engineering Innovation
Elmer A. Sperry Award
Environmental Excellence in Transportation Award
Excellence in Engineering Education - Triple "E" Award
Forest R. McFarland Award
Franklin W. Kolk Air Transportation Progress Award
Franz F. Pischinger Powertrain Innovation Award
Gary Dickinson Award for Teaching Excellence
Harry L. Horning Memorial Award
Henry Ford II Distinguished Award for Excellence in Automotive Engineering
Henry O. Fuchs Student Award
International Leadership Citation
J. Cordell Breed Award for Women Leaders
James M. Crawford Technical Standards Board Outstanding Achievement Award
L. Ray Buckendale Lecture
Lloyd L. Withrow Distinguished Speaker Award
Lloyd Reuss Award for Teaching Excellence
Marvin Whitlock Award
Max Bentele Award for Engine Technology Innovation
Myers Award for Outstanding Student Paper

Honeywell Outstanding Collegiate Branch Award
 Ralph K. Hillquist NVH Lifetime Achievement Award
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 SAE Delco Electronics Intelligent Transportation Systems
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 SAE Emeritus Recognition
 SAE Engineering Meetings Board Outstanding Oral
 Presentation Award
 SAE Faculty Advisor Award
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 SAE Foundation Industry Leadership Award
 SAE Foundation's Stefan Pischinger Young Industry
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 SAE Heinz C. Prechter Award for Automotive Excellence
 SAE John Johnson Award for Outstanding Research in
 Diesel Engines
 SAE Sid Olsen Engineering Executive of the Year Award
 SAE/AEM Outstanding Young Engineer Award
 SAE/AISI Sydney H. Melbourne Award for Excellence in
 the Advancement of Automotive Sheet Steel
 SAE/InterRegs Standards and Regulations Award
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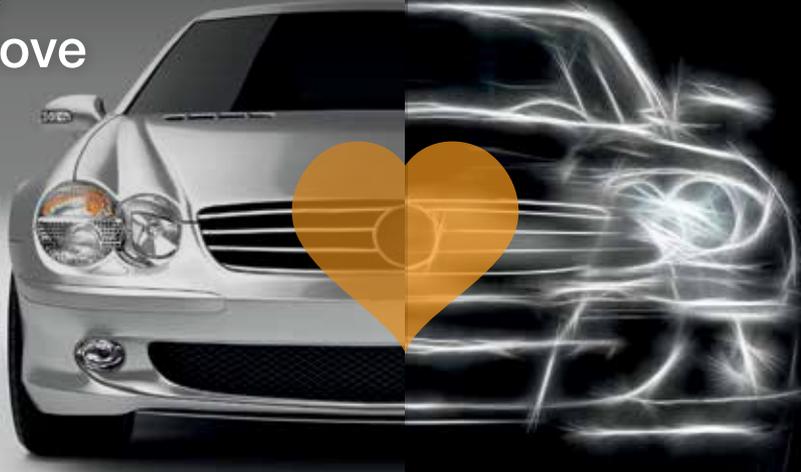
Steven M. Atkins Ability and Achievement in Science,
 Engineering, and Technology (AASET) Award
 Subir Chowdhury Medal of Quality Leadership
 Thomas H. Speller Award
 Vincent Bendix Automotive Electronics Engineering Award
 William Littlewood Memorial Lecture
 William R. "Bill" Adam Formula SAE Vehicle Development
 Grant
 Wright Brothers Medal

Scholarships

Last year, \$69,000 in Scholarships was awarded to 51 students.

BMW / SAE Engineering Scholarship
 Ford / SAE Foundation Scholarship Fund
 Dan and Vicky Hancock Scholarship for Mechanical
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 Edward D. Hendrickson / SAE Engineering Scholarship
 Donald and Barbara Mozley Scholarship
 Tau Beta Pi / SAE Engineering Scholarship
 TMC / SAE Donald D Dawson Technical Scholarship
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The following leaders in the mobility industry have been strong stewards in promoting and supporting STEM education through their commitment to and planning of this evening's celebration.

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Gold	\$8,000	5	VIP+GEN	Half	Recognition in printed program w/logo
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Bronze	\$2,500	0		List	Recognition in printed program w/logo
Table	\$3,200	10	GEN	List	Recognition in printed program (list)
Ticket	\$350	1	GEN		

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