



CIVS and Collaborators Receive Two Best Paper Awards

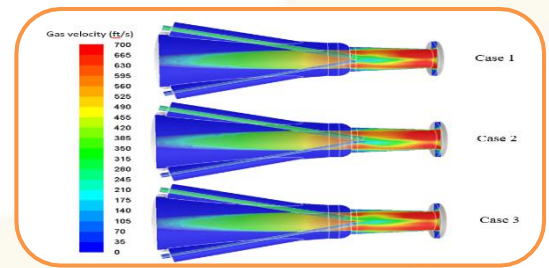
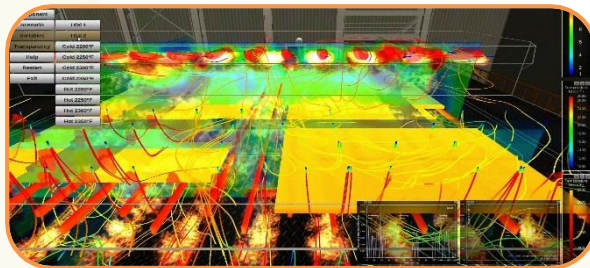
Staff, students and industry collaborators of the Purdue University Northwest Center for Innovation through Visualization and Simulation (CIVS) have received two prestigious awards from the Association for Iron & Steel Technology (AIST).

These awards are the AIST Josef S. Kapitan Ironmaking Best Paper Award and the Computer Applications Best Paper Award. The award recipients were selected for their papers that support the global iron and steel industry. Submitted papers were evaluated by peers and judged on potential economic impact of the topic process and impact on quality of steel, steelmaking cost saving potential, clarity of story line and research thoroughness.

This marks the second consecutive year a team of educators, students and industrial collaborators from Purdue Northwest’s CIVS facility has earned the Kapitan award for research relating to ironmaking blast furnaces.

Kapitan Award recipients are CIVS Director and Professor Chenn Q. Zhou, graduate student Tyamo Okosun, AK Steel Technical Manager Stuart J. Street and former CIVS research engineer Bin Wu.

Recipients of the Computer Applications Best Paper Award are Zhou, Wu, graduate student Guangwu Tang, senior research engineers Dengqi Bai and Yufeng Wang of steel producing company SSAB, and SSAB Director of Research and Development Rick Bodnar for research related to a reheating furnace. [Read more...](#)



Chancellor’s Message: CIVS is Playing Vital Role for PNW

Reprinted from Chancellor Keon’s Points of Pride, November 16, 2016

Supported by cutting edge technologies, the Purdue Northwest Center for Innovation through Visualization and Simulation (CIVS) has helped various industries save more than \$40 million in production and efficiency costs. Inspired by the vision of Mechanical Engineering Professor Chenn Zhou and operated by talented, resourceful staff members and faculty, CIVS has been a catalyst of numerous employer partnerships that have provided valuable, engaged research and other learning opportunities for our students.

Beneficiaries of CIVS technology have included steel, aluminum, oil and energy companies, as well as manufacturing firms, medical labs, K-16 education and governmental agencies.

Backed by a \$480,000 federal grant, this amazing research facility also has spurred the establishment of a national consortium. The consortium is comprised of visionary leaders intent on moving the U.S. steel industry forward by applying CIVS visualization and simulation technologies as research tools to make domestic steel manufacturing more competitive and sustainable. [Read more...](#)



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SMSVC Annual Meeting held November 16-17, 2016

CIVS hosted the two-day annual meeting of the Steel Manufacturing Simulation and Visualization Consortium (SMSVC) at Purdue University Northwest in Hammond, Indiana. The SMSVC is a steel industry consortium that focuses on the development of simulation and visualization technologies to address major issues faced by the steel industry. Over 50 attendees participated in the meeting from the 10 consortium member companies: AK Steel, ArcelorMittal, Cliffs Natural Resources, NIPSCO, NUCOR, Praxair, Steel Dynamics, SSAB, U.S. Steel, and Union Gas. The meeting highlighted research results and next steps. The meeting was a great success. As one member said, "It was a home run!" [Read more...](#)



Hatch Joins SMSVC



[Hatch](#), a global professional services firm, has become the 11th member of the steel consortium. With over six decades of business and technical experience, they stand ready to help support the steel industry through their collaboration as a member. Their expertise and knowledge will bring great value to the consortium.

Researcher Visits Wind Farm

CIVS Researcher John Moreland visited a Michigan wind farm to gather data and gain additional insights for the Center's ongoing NSF project, "Troubleshooting and Safety Simulator for Wind Turbine Technician Education". The Wind Farm, located near McBain, Michigan, is run by Heritage Sustainable Energy. Moreland shadowed Co-PI Tom Sutton and others from Kalamazoo Valley Community College as they did maintenance on a 2.5MW wind turbine. During the visit data and imagery was collected as well as one-on-one interview with wind turbine technicians.



NIPSCO Leader Visits CIVS

Violet Sistovaris, Executive Vice President of NIPSCO visited CIVS to learn how technology at CIVS is supporting NIPSCO and other industries. During the visit, Sistovaris experienced a simulation on the HTC Vive virtual reality (VR) headset used by CIVS for developing VR training programs. She also explored other virtual models developed at CIVS including a steel industry reheat furnace and virtual blast furnace. "CIVS is not only continuing to create a tremendous learning environment and experience for students, but they're using technology resources to help our industry and others in a way that is both relevant and insightful," said Sistovaris following her visit.



Spotlight on Faculty: Dr. Chien-Chung Chen



Chien-Chung Chen is an Assistant Professor of Civil Engineering who is working with CIVS and senior design students to develop interactive virtual learning tools to help teach Statics and Dynamics in Mechanical and Civil Engineering courses. He has worked with CIVS previously developing virtual learning modules and interactive steel building design to teach about stresses. He also worked with CIVS on a proposed NSF research project to provide Science, Technology, Engineering, and Mathematics (STEM) research experiences for high school and community college teachers and students. His previous research also includes sponsored research involving concrete mixture with plastic as fine aggregate replacement.

Middle School Students Visit CIVS

Purdue University Northwest hosted 280 middle school students from Hobart in November at the Hammond Campus. The program, *Walk into My Future at Purdue Northwest*, is designed to introduce young students to college opportunities, particularly the quality opportunities right here in Northwest Indiana. CIVS was featured during the event. During their visit, students wore 3D glasses to learn about the steel industry in the Center’s Immersive Theater. The demonstration showed the impact of the steel industry on Northwest Indiana and the world. The video demonstrates the ways in which the steel industry has become safer and more ecologically friendly. It also gives students insight about career opportunities available in the steel industry.



AIST 9th H.S. Engineering Seminar



Nearly 300 teens from Indiana and Illinois high schools participated in hands-on engineering projects at PNW and CIVS last fall. The students attended the 9th Annual High School Engineering Seminar sponsored by the Association for Iron & Steel Technology (AIST) Midwest Chapter.

The teens had an opportunity to participate in five hands-on lab sessions, including making a glider out of a foam paper plate, building a free-standing tower using spaghetti and gumdrops, and developing designs in a 3D visualization lab. [Read more...](#)

Purdue Distance Learning Week

As part of Purdue’s National Distance Learning Week’s events, PNW held an event to promote distance learning and digital learning. The event was held live in Hammond and broadcast to all Purdue University campuses. CIVS was featured as part of the event highlighting some of the virtual learning projects developed by the Center. Research Engineer Mike Hoerter presented about the value of learning through simulation and games and presented projects including Fall Protection Safety Simulator, an educational game for English students, and a Virtual Wind Turbine.

CIVS Participates in ATE Conference



The American Association of Community Colleges and NSF held the 23rd National ATE Principal Investigators conference in Washington, DC. Dr. Chenn Zhou and John Moreland presented the 3D wind turbine training program project being developed through the NSF ATE grant.

Student Success Story: Dominique Lettiere



Dominique Lettiere is a 2016 graduate of Purdue Northwest with a BS degree in Mechanical Engineering. As a senior, under the supervision of Professor Zhou and CIVS, Dominique’s senior design group developed a simulation to evaluate the gas stirring efficiency of ladle used in steel manufacturing. Her senior design project, research with CIVS, and collaboration with various industries is what helped her to determine the field work she would pursue. Dominique recently accepted an associate research position with SPX Transformer Solutions in Milwaukee Wisconsin. With this position she will be exposed to design, manufacturing, and supply chain management. Dominique attributes her success to the skills learned with CIVS. She expressed how important it is for students to learn communication skills, leadership, and technology which are applicable to industry.

Examples of CIVS Projects

PROJECT	SPONSOR / COLLABORATOR
Design and Structural Analysis of Truck Tailgates	King Tailgates LLC
Design of Fall Protection Simulator for Industrial Safety	AIST
Scheduling Optimization Model for Steel Slab Producing	ArcelorMittal
CFD Modeling of a Torpedo-Car for Improved Mixing Process	ArcelorMittal
Slag Eye Size in Steel Ladle	SMSVC

Steel Consortium Info

- **Semi-Annual Meeting Scheduled for May 16-17, 2016** – For more information contact Doreen Gaboyan at gaboyand@pnw.edu.
- **SMSVC Booth at AISTech 2017** – Booth number #1213. Come visit us May 8-11, 2017 in Nashville, Tenn., USA – Music City Center.
- **Consortium Accepting New Members** – The SMSVC is currently accepting new members. If your company is interested in becoming a consortium member please contact Doreen Gaboyan at gaboyand@pnw.edu for more information. For additional information on the consortium visit the website steelconsortium.org.

Fall Protection Simulator Officially Released

For safety training, SMSVC developed an 3-D interactive Fall Protection Safety Simulator. It allows users to learn about and practice proper safety procedures for working at height. The simulator includes sections for selecting and inspecting Personal Protective Equipment (PPE), Fall Protection Equipment, choosing anchor points, and environmental awareness for moving hazards. To request a version of the simulator email us at steelconsortium@pnw.edu.



Facts and Impact (Since 2009)

- \$40+ million savings for companies
- \$15,595,702+ million in external grants and contracts
- 102 external organizations collaborated with CIVS
- 297 projects
- 285 national and local news
- 1,000+ students employed and mentored
- 8,129+ students used CIVS for virtual labs
- 99 Purdue Northwest faculty and staff collaborators
- 61 student awards locally and globally (since 2011)
- 22,843+ local and global visitors

Office of Institutional Advancement – Giving to CIVS



It begins with an opportunity to GIVE something back to a University you care about. It ends with the realization that you helped that University GROW into something even more worthwhile than before. Are you ready to be a leader and INSPIRE others? Make a gift today by visiting us at centers.pnw.edu/civs and clicking the “Give to CIVS” button. Specify “Center for Innovation through Visualization and Simulation”. For more information please contact: Danielle Haydell, Coordinator of Annual Giving Programs, 219.989.4155, advance@pnw.edu