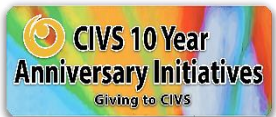




CENTER FOR INNOVATION THROUGH
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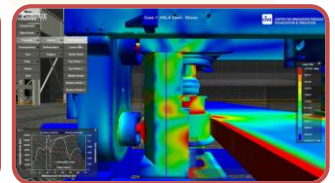
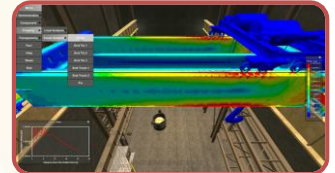
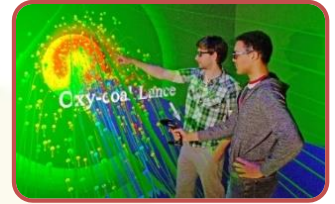
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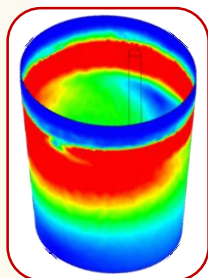


First NSF RET Site in Northwest Indiana

An NSF Research Experience for Teachers (RET) site will be established at PNW's Center for Innovation through Visualization and Simulation (CVIS) and Steel Manufacturing Simulation and Visualization Consortium (SMSVC). This is the first of its kind in Northwest Indiana supported by the National Science Foundation (NSF) with \$592,681 for three years. The RET site will provide high school teachers research experiences to use simulation and visualization technologies for providing innovative solutions to real-world industrial problems. It will address critical issues of workforce development and the skills gap in industry, as well as helping to increase energy efficiency, optimize production, predict mechanical failures, and improve product quality and safety in industrial workplace settings. [Read more ...](#)



CVIS Receives First AIST Digital Technology Grant



CVIS, in collaboration with steel industry partners, was awarded the first ever AIST Digital Technology Grant, entitled: SMART LADLE: AI-based Tool for Optimizing Casting Temperature. The objectives are to develop a digital tool to generate quantifiable relationships between process variables and casting temperature for improved casting control, to promote student engagement in digital technologies, and to increase awareness of the steel industry. [Read more ...](#)

CVIS Director Chairs International Conference

The 8th International Conference on Modeling and Simulation of Metallurgical Processes in Steelmaking (SteelSIM 2019) took place on August 13–15 in Toronto, Canada. AIST and the conference's 35-member Scientific Committee assisted with organizing the conference chaired by Dr. Zhou. According to AIST, "SteelSIM 2019 was truly global in scale, welcoming 171 attendees from 22 different countries and 98 universities and companies." The conference underlined the importance of the continuing digital technology transformation to the steel industry. Purdue University Northwest's significant links to steel manufacturing and to process simulation research also shone throughout the conference, as 12 PNW and CVIS faculty, limited-term lecturer, visiting scholar, and students attended the conference... [Read more ...](#)



Steel Dynamics, Inc. Shares Industry Expertise at Butler, IN Facility

On October 29th, a multidisciplinary CVIS team visited Steel Dynamics, Inc. in Butler, IN to discuss cutting-edge projects in safety training, engineering simulations, and smart manufacturing. Representing three project teams, the CVIS group toured the different stages of the SDI's steel production process, including the electric arc furnace, the steel refining line, and the casting line.

[Read more ...](#)



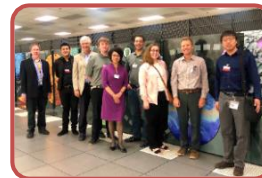
CVIS Invited to AISI, SMA Annual Meeting

On June 4, at the Steel in Washington 2019 event in Washington, DC, Dr. Chenn Zhou gave a 75-minute presentation on Industry 4.0 & technology advancements for the future of steel. Dr. Tyamo Okosun demonstrated advanced simulation models and visualization technologies to meeting attendees. [Read more...](#)



PNW Partners with National Lab, ArcelorMittal for HPC Research

CVIS is partnering with ArcelorMittal, the SMSVC, & Argonne Nat'l Lab on a project funded by the U.S. Department of Energy's HPC4Mfg Program. The project, "Application of High-Performance Computing (HPC) to Optimize Reheat Furnace Efficiency in Steel Manufacturing," will focus on improving steel reheat furnace energy efficiency by simulating phenomena and developing databases of criteria for optimized furnace operation. [Read more ...](#)



Research Collaboration with Stelco

On Sept. 16th, a CVIS research team traveled to Stelco's Lake Erie Works integrated steel mill in Nanticoke, ON to present research on Stelco's blast furnace and ladle to their engineers and leadership team. In addition, the team showcased new Virtual Reality & Augmented Reality technologies and several interactive simulators with real scenarios developed by CVIS researchers & students for safety training. [Read more ...](#)



Dr. Okosun Presents at AIST Committee Meeting in Alabama

CVIS Senior Research Engineer Tyamo Okosun was invited to present at the AIST Electrical Applications Technology Committee meeting on Oct. 15th at Nucor Tuscaloosa in Tuscaloosa, AL. The presentation topics included university relations & women in steel. [Read more ...](#)

Spotlight on Faculty: Dr. Hansung Kim



Dr. Hansung Kim joined Purdue University Northwest in August 2014 and is an Assistant Professor of Mechanical Engineering. Prof. Kim has passion in both teaching and research. His research at PNW focuses on finite element analysis. He is collaborating with CVIS on various projects, with one example being the minimization of particle inclusion in steel manufacturing. Another example is "3D Modeling and Simulation for Lifetime Prediction of an Electronic Component", which is funded by the NSWC Crane federal facility in Crane, Indiana. This research aims to determine component lifetime and identify both interactive materials effects and secondary environmental effects on components.

Girl Powered Event at High School

Dr. Zhou participated in the Girl (Em) Powered Summit on Oct. 19. According to Portage Life, “The panel of 15 women took Portage high school's new Learning Center by storm and shared their expertise and experience with 42 energetic young ladies from grades 4 through 12....” [Read more ...](#)



24 Students Attended AIST Meeting

Twenty-four students attended the AIST Midwest Kick-off Dinner Meeting on Oct. 8th. The keynote was on maximizing productivity and constant improvements of processes by John Mengel (VP & GM) and Kelly Dallas (Principle Engineer) at ArcelorMittal Burns Harbor. [Read more ...](#)



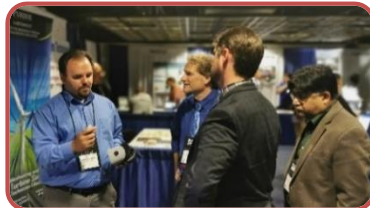
AIST Energy Presentation and Panel at Oak Ridge National Laboratory

CVIS Director, Dr. Chenn Zhou, gave an invited talk and panel discussion at the AIST Energy & Utilities: Industry Insights and Fundamentals Workshop on Oct. 9th at Oak Ridge Nat'l Lab in TN. The workshop offered a great overview for engineers and managers, providing a better understanding of energy-related aspects of utilities in steelmaking and a foundation to recognize and implement energy savings projects. [Read more ...](#)



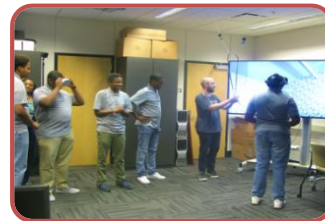
Wind Simulators Demonstrated at NSF ATE PI Conference in Washington, D.C.

A CVIS team traveled to Washington D.C. for the NSF's Annual Advanced Technological Education (ATE) PI Conference on October 23-25. Senior Scientist John (Jack) Moreland showcased their ATE project titled “Troubleshooting and Safety Simulator for Wind Turbine Technician Education”, which is being developed in collaboration with community colleges. The ATE PI Conference is held by the American Association of Community Colleges, with the support of the National Science Foundation (NSF). [Read more ...](#)



NIPSCO “Energy Ambassadors” Students Delve into CVIS Labs

Around 35 region high school students toured CVIS facilities, learned about basic principles of engineering & the educational advances in energy generation technologies. The students also had the opportunity to experiment with virtual reality (VR) and augmented reality (AR) environments as part of the NIPSCO-sponsored Energy Ambassador Program for Lake and LaPorte counties. [Read more ...](#)



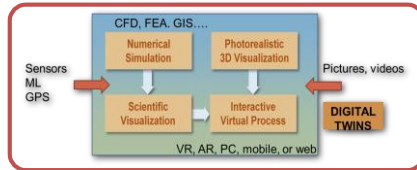
Student Success Story: John Resa



John Resa received his B.S. in Mechanical Engineering (ME) in May 2019. He was admitted to 4+1 combined B.S. & M.S. in ME program and hired as a Graduate Research Assistant (RA) at CVIS because of his excellent academic records and his passion on research. John’s research focuses on using computational fluid dynamics to simulate industrial processes, such as primary cooling of casting in steel manufacturing, for improving quality and productivity. In addition to conducting research projects, John is the coordinator for students to attend monthly AIST Midwest Chapter’s monthly dinner meeting on the second Tuesday of every month. He is also the President of PNW’s NASA Rover and ASHRAE student chapter. John states, “CVIS gives me great experiences for real-world research and networking with industrial professionals. My experiences at CVIS will well prepare me for my future career.”

SMSVC Grows to 16 Member Companies

The Steel Manufacturing Simulation and Visualization Consortium (SMSVC) has expanded in 2019 to a record 16 member companies, bringing together professionals and experts in iron and steel manufacturing from around the world. The member companies work together with students and faculty at PNW CIVS, using simulation and simulation and visualization to improve the competitiveness of steel industry. [Read more ...](#)



SMSVC NOTES

Fall 2019 Annual Meeting Scheduled: November 13-14, 2019

For more information, please contact us at civs@pnw.edu

SMSVC Accepting New Members

SMSVC is accepting new members. If interested in becoming a member, please contact Melissa Mollett at mmollett@pnw.edu.

For information on the Consortium, visit steelconsortium.org.

SMSVC Welcomes Gerdau North America

According to Vice President Adam Tabor, “Gerdau is more than just a steel company. Our greater purpose is to empower people who build the future, and we couldn't be more excited to partner with Purdue Northwest, and the consortium, to help build the future together.” [Read more ...](#)



SMSVC Welcomes Charter Steel

Tim Lorge, President of Charter Steel, said: “Charter Steel is committed to improving energy efficiency and driving continued innovation through smart manufacturing programs. Joining the Steel Consortium provides the tools & resources to take our efforts to the next level.” [Read more ...](#)



SMSVC Welcomes NLMK Indiana



H.B. Kincaid, Vice President Operations NLMK Indiana, said: “NLMK Indiana is excited to become a member of Purdue University Northwest’s Steel Manufacturing Simulation and Visualization Consortium, (SMSVC). It is an opportunity for our company to engage in research conducted on new Steel Making technologies and to expand our use of computerized modeling on technical subjects and processes leading to continuous improvement and operational efficiency.” [Read more ...](#)

EVRAZ North America Welcomed to SMSVC



“EVRAZ North America is excited to become a member of the SMSVC and looking forward to participating and contributing to the group as well as benefiting from utilizing the knowledge and resources the consortium offers.”, said by Research Engineer Dr. Bikram Konar. [Read more ...](#)

Facts and Impact (Since 2009)

- \$40+ million savings for companies
- \$19,000,000+ in external grants and contracts
- 140+ external organizations collaborated with CIVS
- 370+ projects
- 480+ national and local news
- 1,550+ students employed and mentored
- 10,500+ students used CIVS for virtual labs
- 130+ Purdue Northwest faculty and staff collaborators
- 148 student awards and grants (globally, since 2011)
- 34,200+ local and global visitors