



CVIS Newsletter

June 2019

“Where Ideas Become Reality”

Issue 23

CVIS Celebrates 10th Anniversary

CVIS celebrated its 10-year anniversary on April 17, 2019, with a facilities-wide Open House and evening Gala events that featured demonstrations of selected research project collaborations; cutting-edge visualization technologies; a Who’s Who list of steel manufacturing icons, business and community luminaries, and renowned academics; a “Retrospective” 10-Year Video; and a red-carpet setting befitting the pre-eminence of the event. [Read more ...](#)

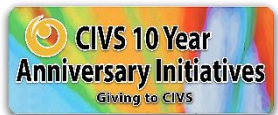


Looking for full-sized and/or further images from the celebration? [See more ...](#) event photos.



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NIPSCO Leadership Team Expands Vanguard Technology



In between the technology exhibits at the June 4 and 6, 2019, NiSource Innovation Expo days (*see article on page 3*), a nine-member NIPSCO leadership team took time on June 5 to examine in detail a range of CVIS wind energy, virtual training, wind-energy virtual training, and other advanced simulation and visualization projects and capabilities at the Purdue Northwest CVIS facilities. [Read more ...](#)

‘CVIS 10.0’ Brings Visualization Expertise, Insights to AIST Digital Transformation Forum

Nearly 240 steel industry representatives and technology providers, from a dozen countries worldwide, gathered at the Omni William Penn Hotel in Pittsburgh on March 25-28, 2019, for the AIST’s first-ever major **Digital Transformation Forum for the Steel Industry**. To this event, CVIS and SMSVC Director Dr. Chenn Zhou brought 10+ years of expertise in advanced visualization technologies, a much-complimented vision for steel industry technology advancement, and a presentation on “Virtual Reality (VR) and Augmented Reality (AR) Visualization for Digital Transformation.” [Read more ...](#)



CIVS Receives Naval Engineering Education Consortium Research Grant

Purdue Northwest's CIVS has been awarded a 2019-2020 research grant under the Naval Engineering Education Consortium (NEEC) program, through the Department of the Navy, Naval Surface Warfare Center, Crane Division (NSWC Crane).

The project, "Visualization of Repair Operations Management for Networked Systems Resilience," will research and develop visualization approaches to efficiently find solutions for optimizing repair operations and mitigating network failure, for a model-based decision support system. [Read more ...](#)



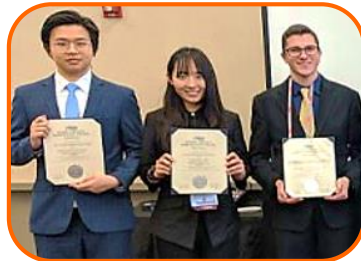
Digital Transformation Trend Continues at AISTech 2019

To the burgeoning interest in simulation and visualization technology tools for the steel industry, CIVS staff and students contributed **five** technical presentations and **seven** entries in student contests (poster and oral) at AISTech 2019, held May 6-9 at the David L. Lawrence Convention Center in Pittsburgh, Pa.



Student Wins 2nd-Place Award

Yining Xu (*center*) won a second-place award in the Undergraduate Student Project Presentation at AISTech 2019 for her "CFD Study of the Hot Blast System for a Blast Furnace." [Read more ...](#)



Steel Scrap Processing Research Presented at TMS 2019

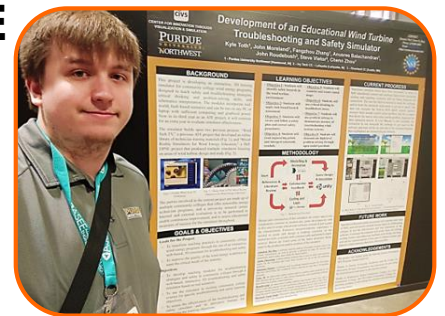
CIVS Graduate Research Assistant Yuchao Chen added to the body of knowledge on high-temperature metallurgical processing through presentation of "Effects of Steel Scrap Oxidation on the Scrap Preheating Process in an Electric Arc Furnace," delivered at the 148th Annual Meeting of TMS (the Minerals, Metals, and Materials Society) on March 14, 2019, in San Antonio, Texas.

[Read more ...](#)



NSF ATE Wind Turbine Simulator Project Featured at 2019 ASEE

Purdue Northwest's NSF ATE-funded project, "Development of an Educational Wind Turbine Troubleshooting and Safety Simulator," was the title subject for both the poster and technical paper presented at the 126th Annual Conference of the American Society for Engineering Education (ASEE), held in Tampa, Florida, from June 16-19, 2019. CIVS Associate Research Engineer Kyle Toth represented PNW and the multi-educational institution project at the NSF Grantees Poster Session on Monday, June 17. [Read more ...](#)



Student Researchers Show Mettle at 2019 PNW Days of Discovery

Diligent preparation and presentation efforts were brought to fruition as **five** different CIVS student teams, and **nine** CIVS students altogether, medaled in four different categories during the 2019 PNW Days of Discovery, held April 2-3, 2019. [Read more ...](#)



Graduate Research Assistant Places in 3MT® Competition

CIVS Graduate Research Assistant Bethany Worl won a second-place award at Purdue University Northwest's 2019 Three Minute Thesis (3MT®) Competition on April 2, for her presentation "Taming Oxidation through Numerical Modeling." [Read more ...](#)

PNW/Enbridge Engineering Summer Camps Show Technology Applications



The PNW Hammond campus, and CIVS, hosted a pair of week-long engineering summer camps for middle-school and high-school students, from June 10-14 and June 17-21, respectively. Students rotated through different engineering areas—civil, mechanical, electrical, and computer engineering—and performed hands-on activities within those areas, including activities in nanotechnology, robotics, water filtering, surveying, bridge building & stress testing, fluid mechanics, and 3D printing and computer aided design. [Read more ...](#)

H-F High Schoolers Engage in Heavy-E STEM Experience

The Purdue Northwest School of Engineering, CIVS, and numerous staff, faculty, and administrators hosted a STEM Experience Event on Friday, March 1, 2019, for a contingent of Homewood-Flossmoor high school students who experienced first-hand the extent to which engineers can organize and coordinate an informational tour ... and pack the “E” into a STEM event. [Read more ...](#)



Safety Training Collaborations Featured at NiSource Innovation Expo(s) 2019



“See and test exciting technologies that deliver safe and reliable service to our customers and protect the public!”

Thus opened the first NiSource Innovation Expo series, held in Columbus, Ohio on June 4, and at NIPSCO headquarters in Merrillville, Indiana, on June 6. Attendance from the two-location event totaled more than 800 people, with around 20 technology vendor/demonstration stations. Highly featured among these stations—and highly ranked by event attendees—were the Virtual Safety Training projects collaboratively produced by NiSource and CIVS. [Read more ...](#)

CIVS and ArcelorMittal Team Up on 360° Promotional Video Project

CIVS researchers Kyle Toth and John Moreland gained real-world, on-site knowledge about various steel industry operations and equipment, and used 360° video to capture the experiences, during a tour of ArcelorMittal’s Burns Harbor facility on March 5, 2019. That 360° and “surround-sound” footage will be used to produce a virtual reality promotional video for events such as job fairs and K-12 outreach. The film will show what it’s like to work in certain areas of a steelmaking facility, and will illustrate environments and operation activities.

[Read more ...](#)



Virtual Die Casting Simulator “Core Attraction” at 2019 NADCA Plant Management Conference

The 2019 Plant Management Conference organized by the North American Die Casting Association (NADCA), and held May 1-3 at the Gaylord Opryland Resort & Convention Center in Nashville, Tennessee, reached its maximum registered capacity weeks before the conference opened. “And we’d like to take credit for that,” said Kyle Toth, CIVS Associate Research Engineer. “But ...” [Read more ...](#)

Steel Consortium Grows as PNW Steel Week Launches

The SMSVC held its Semi-Annual Meeting at PNW's CIVS facilities on April 10-11, 2019, drawing steel manufacturing and related materials/utilities professionals from across the globe. In addition to review of ongoing research projects, the meeting focused on growth in industry-academia collaborations, membership, and digital transformation efforts. PNW also dedicated April 8-12 as **Steel Week 2019** on the Hammond campus, kicked off with an ArcelorMittal-sponsored "Careers in the Steel Industry" evening presentation on Monday, April 8. [Read more ...](#)



SMSVC Welcomes **TATA STEEL** Tata Steel

International steel manufacturer Tata Steel (Tata Steel Nederland BV, based in the Netherlands), was accepted for SMSVC membership in January 2019. Hans van der Weijde, Programme Director at Tata Steel, said, "This partnership will enhance the development and usage of advanced simulation techniques for the production of high-value, high-grade steel for automotive and other markets." [Read more ...](#)

SMSVC Welcomes **GERDAU** Gerdau

In June 2019, PNW's Steel Consortium gained another collaborator, as Gerdau was accepted for membership. "Gerdau is more than just a steel company," said Adam Tabor, Gerdau Vice President of Order Fulfillment, "Our greater purpose is to empower people who build the future, and we couldn't be more excited to partner with Purdue, and the Consortium, to help build the future together." [Read more ...](#)

8th International STEELSIM Conference to Feature Top Modeling Talent

The 8th International Conference on Modeling and Simulation of Metallurgical Processes in Steelmaking (STEELSIM2019) will be held August 13-15, 2019, at the Marriott Downtown in Toronto, Ontario, Canada. Sponsored by the AIST's Computer Applications Technology Committee and the Metallurgy and Materials Society of the Canadian Institute of Mining, Metallurgy and Petroleum, STEELSIM2019 will bring together researchers and producers from top universities and manufacturers around the world. [Read more ...](#)



Facts and Impact (Since 2009)

- \$40+ million savings for companies
- \$18,700,000+ in external grants and contracts
- 130+ external organizations collaborated with CIVS
- 360+ projects
- 460+ national and local news
- 1,530+ research positions (BS/MS/PhD)
- 10,100+ students used CIVS for virtual labs
- 130+ Purdue Northwest faculty and staff collaborators
- 144 student awards and grants (globally, since 2011)
- 33,500+ local and global visitors



SMSVC NOTES



Thanks to Gerard Louwse for the Tata Steel introduction.

Fall 2019 Annual Meeting Scheduled for Nov. 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, contact us at civs@pnw.edu.

For information on the Consortium, visit steelconsortium.org.