



CIVS Newsletter

August 2023

"Where Ideas Become Reality"

Issue 34



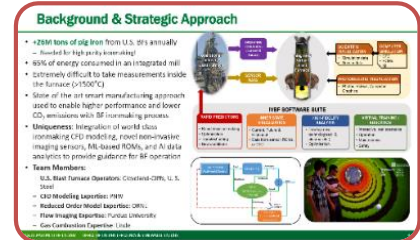
CENTER FOR INNOVATION THROUGH
VISUALIZATION & SIMULATION

\$7M IVBF Project Highlighted in DOE Review Meeting



CIVS successfully completed the first phase of the DOE-funded \$7M IVBF project led by Dr. Tyamo Okosun. The project was selected to provide one of two oral

presentations at the annual DOE Industrial Efficiency and Decarbonization Office peer review meeting in May, to showcase ongoing efforts in iron and steel research. The project was approved to continue into the second of three phases, which will focus on the development of blast furnace stability indices, and implementation and refinement of Reduced Order Models (ROMs). [Read more...](#)



Cleveland-Cliffs Executive VP Delivers Keynote on Decarbonization

Mr. Wendell Carter, Executive Vice President of Technology at Cleveland-Cliffs, delivered an insightful keynote speech at the SMSVC Semi-Annual Meeting dinner at PNW in April. His inspirational speech, entitled "A Discussion on Cleveland-Cliffs Steelmaking, CO₂ Capture, & Electrification," covered many vital points. "The vision for the future of steelmaking that Mr. Carter lays out shows how innovation and change are still necessary. Green energy sources and cost-effective hydrogen implementation, are all areas that can help make American steelmaking the cleanest in the world", said student Adam Duesing. [Read more...](#)



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SMSVC Welcomes New Member: Bloom Engineering

Bloom Engineering is a new member of the Steel Manufacturing Simulation & Visualization Consortium (SMSVC). Mr. Dave Schalles, VP-Technical Services, will represent their company on the SMSVC Board. "We believe that our participation will be mutually beneficial for us as well as the current Consortium members. Bloom will be anticipating a variety of benefits from Consortium membership including access to CIVS simulation and visualization capabilities, as well as the ability to connect with highly qualified students." Said Dave Schalles. SMSVC now includes 16 companies. [Read more...](#)

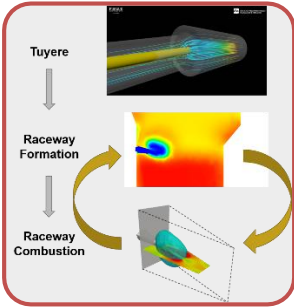


U. S. Steel Visits CIVS to Trial New Crane Simulator For Operator Training



Representatives from U. S. Steel Gary Works visited CIVS for a demonstration of the newly developed crane training simulator in June. The simulator will allow workers to experience and work hands-on in a virtual environment with real scenarios based on the cranes they actually work with in the plant. [Read more...](#)

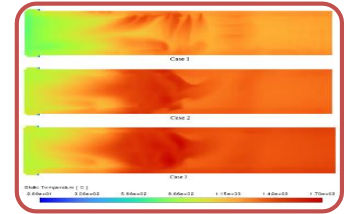
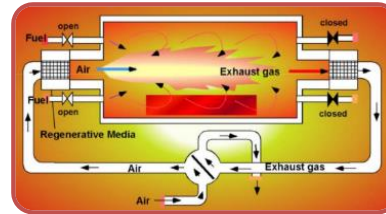
Three Presentations at TMS 2023



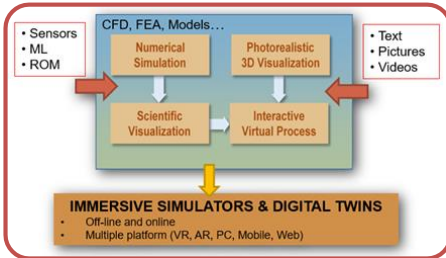
CIVS researchers gave three technical presentations at TMS 2023 in San Diego, CA. Topics included blast furnace H_2 injection, secondary Lead Reverberatory Furnace, and the die-casting virtual training simulators. [Read more...](#)

H_2 Combustion Presented at SHTC 2023

SMSVC research on H_2 combustion and spray cooling were presented at the ASME Summer Heat Transfer Conference 2023 in Washington DC. [Read more...](#)



CIVS Delivers Research Presentations at Multiple International Conferences

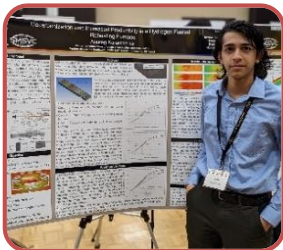


Jack Moreland presented visualization projects and methodologies virtually at the 30th IEEE VR Conference in March. [Read more...](#) Nick Walla attended the European Steel Technology and Application Days (ESTAD) conference in Dusseldorf, Germany to present SMSVC research projects. [Read more...](#)

NSF RET Teachers Complete Summer Session and Lead STEM Outreach

Congratulations to 18 high school and community college teachers for completing the six-week NSF Research Experience for Teachers (RET) program at CIVS to conduct research and develop lesson plans for their STEM classes. [Read more...](#) RET teacher Shermaine Brown-Wade brought Morton High School students, to visit CIVS to learn advanced technologies. [Read more...](#) RET Teacher Tiffany White at Homewood-Flossmoor High School, presented her RET research in a national conference. [Read more...](#) The RET program was presented at the annual American Society for Engineering Education conference. [Read more...](#)



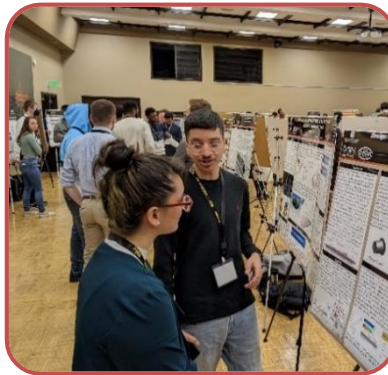


CIVS Students Triumph in AISTech Competitions

Congratulations to CIVS research students for winning six awards in AISTech2023 in May in Detroit. These include all the awards (1st, 2nd, & 3rd places) in the Graduate Student Poster Contest, 3rd place in Undergraduate Student Oral Presentation Contest, AIST Foundation Real Steel Video Contest Prize Winner, and AISTech Attendance Challenge winner for PNW Materials Advantage Chapter. [Read more...](#) CIVS Researchers and collaborators also delivered 7 technical papers in the areas of Blast Furnace, Continuous Casting, Digital Twin, EAF, Ladle, and Safety. CIVS Director Dr. Chenn Zhou served as a panelist for “Opportunities for Carbon Free Improvements in Reheating Furnaces Using Induction and Hydrogen.” [Read more...](#)

CIVS Student Research Projects Showcased at PNW Days of Discovery

CIVS research students presented their work during the 2023 PNW Days of Discovery, with 20 posters and two highlighted oral presentations. Research topics include digital twins, machine learning, decarbonization, continuous casting, hazard recognition, and training simulators, etc. Industry leaders also viewed and selected three winners from the CIVS student posters at the SMSVC keynote dinner. [Read more...](#)



Dwyer Instruments Experience Technologies at CIVS

Managers and engineers from Dwyer Instruments visited for a CIVS overview and to review CFD results of a new Insertion Flow Transmitter sponsored by their company. Visitors also had the opportunity to experience various VR simulators such as the Fire Extinguisher Training Simulator and Excavation Safety as well as a 360-degree virtual plant tour. CIVS has collaborated with Dwyer on several projects since 2018. [Read more...](#)

Student Success Story: John Rosser

Former CIVS graduate research assistant John Rosser, joined Raytheon Technologies in Tucson, Arizona as a Systems Engineer II. John graduated with a BS and MS in Mechanical Engineering from Purdue University Northwest. He conducted research at CIVS since the fall semester of his senior year in 2020. John said: *“Working at CIVS provided me with an exceptional opportunity to prepare for my career as an engineer in a way that conventional college courses could not match. My time at CIVS challenged me to become a better engineer by repeatedly placing me in situations where I had to rapidly research and develop new skills needed to succeed.”* [Read more ...](#)



SMSVC Semi-Annual Meeting Highlights Digitalization and Decarbonization

Over 60 industry leaders attended a very productive Semi-Annual Meeting at CIVS in April. The two-day meeting included SMSVC project presentations and discussions including Blast furnace, Electric Arc Furnace (EAF), Ladle, Reheat furnace, and Primary and secondary cooling for continuous casting, and safety. A forum on Smart Manufacturing was also held. [Read more...](#)



SMSVC NOTES

**Semi-Annual Meeting
November 8 & 9, 2023**

SMSVC Accepting New Members

SMSVC is accepting new members. If interested in becoming a member, please contact steelcons@pnw.edu

For more information on the Consortium, visit steelconsortium.org.

CIVS Alumni Return as Industry Representatives



Five recent PNW Engineering Alumni were among the over 60 industry representatives at the SMSVC Semi-Annual meeting. Four of them have conducted SMSVC projects as research assistants at CIVS. During the event, they actively provided comments and suggestions for SMSVC projects from industrial perspectives. They represented ArcelorMittal, Cleveland-Cliffs, Gerdau, NiSource, and SSAB Americas. [Read more...](#)

CIVS Demonstration at ArcelorMittal's Global Health and Safety Day

ArcelorMittal Global Health and Safety Day event included a demonstration of the CIVS fire safety virtual reality (VR) simulator. [Read more...](#)



CIVS Staff Member Elected AIST Safety Committee Vice Chair

Kyle Toth, Senior Research Engineer at CIVS, was elected the Vice Chair of the AIST Safety and Health Technology Committee during the committee's meeting at AISTech2023 in May. [Read More...](#)



Facts and Impact (Since 2009)

- \$40+ million savings for companies
- \$37,400,000+ in external grants and contracts
- 180+ external organizations collaborated with CIVS
- 420+ projects
- 690+ national and local news
- 2,020+ students employed and mentored
- 11,600+ students used CIVS for virtual labs
- 200+ Purdue faculty and staff collaborators
- 305+ student awards and grants (globally, since 2011)
- 42,000+ local, national and international visitors