



2023 DATA MINE REPORT

FALL 2022-SUMMER 2023



The Data Mine



FROM THE DIRECTOR

Dr. Mark Daniel Ward | Executive Director, The Data Mine

A big highlight in fall 2023 is the announcement that Purdue University will construct a new “Hillenbrand South” residence hall, with 900 beds, at a cost of \$149 million. The Data Mine is also very excited about the continued growth of our team of students and staff members. We now have 23 faculty and staff members in The Data Mine, as well as more than 1200 undergraduate and graduate students taking courses in The Data Mine here in West Lafayette during academic year 2022-23. Corresponding to the growth of the team and the number of students, we aspire to have at least 100 Corporate Partners student projects during the 2024-25 academic year, led by our new Managing Director of Corporate Partnerships, Emily Hoeing.

Throughout 2023, Kali Lacy and Naomi Mersinger worked as Co-Managers for the NSF-funded Convergence Accelerator program called “Developing Experiential Accessible Framework for Partnerships and Opportunities in Data Science (for the deaf community)” (see more under expansion initiatives). We also thank the NSF for the second year of funding for The National Data Mine Network (NDMN), which offers The Data Mine experience to approximately 100 undergraduate students at Minority Serving Institutions throughout the United States. Jessica Jud continues to play a leading role in coordinating logistics for NDMN in our team.

Katie Sanders has been promoted to our Chief Operating Officer. Dan Hirleman has been appointed as Regional Director of The Data Mine of the Front Range. He will further develop Corporate Partnerships and University Partnerships, especially with those organizations on the Front Range (the urban corridor from Pueblo, CO to Cheyenne, WY). The Data Mine students continue to work and thrive in dozens of campuses across the USA. The regional programs at Arizona State University, at Purdue’s Fort Wayne campus, and at Youngstown State are some of the largest regional programs at present. Maggie Betz is leading a new Data Mine program that launched in January 2024 at Purdue’s Indianapolis campus. The Data Mine is ever-thankful for the \$10 million Lilly Endowment award from the Charting the Future for Indiana’s Colleges and Universities, which enabled the launch of The Indiana Data Mine.

Our rapid growth would be impossible without the tireless contributions of our mentors from our Corporate Partners. The Data Mine is also thankful to receive the Pillar Award from Purdue’s Center for Education and Research in Information Assurance and Security (CERIAS). Boeing, CERIAS, and The Data Mine have been building a new cybersecurity in aviation program since August 2023. The team of students that worked with Boeing were recognized for the top student prize at CERIAS’s 24th Annual Security Symposium in 2023; they also just presented their research at the national AAAI conference. Lauren Dalder and Max Low are also highlighted in the School of Aeronautics and Astronautics 2023/2024 Aerogram for fostering new opportunities with the Aerospace Corporation this year.

The 2023-24 academic year marks the sixth year of The Data Mine. We recognize and appreciate our numerous friends and partners at Viasat, which launched our very first Corporate Partnership and has worked with us continuously throughout these last six years. We look forward to even more opportunities with all of our partners in 2024 and the years ahead!

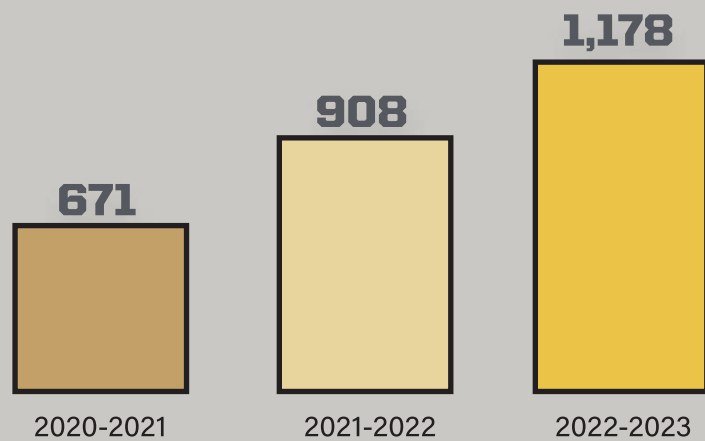
THE DATA MINE GROWTH



STUDENTS IN THE DATA MINE

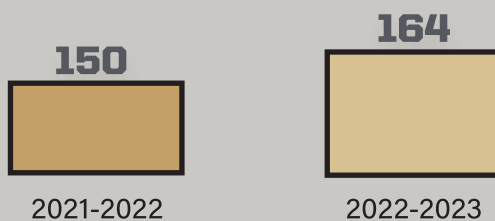
Purdue West Lafayette students only. Please see page 9 for Expansion Initiatives.

Does not include TAs. We have over 100 TAs in The Data Mine.

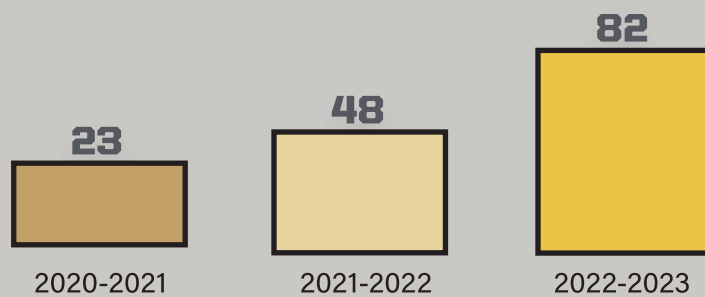


OF MAJORS REPRESENTED

Across all majors at Purdue West Lafayette



CORPORATE PARTNER PROJECTS



CORPORATE PARTNERS

The Data Mine expresses gratitude to our Corporate Partners for their generous support throughout the academic year 2022-2023. Their ongoing commitment and involvement enables students to get 'real world' experience through the projects that you provide. We look forward to the 2023-2024 academic year and cannot wait to see what it brings!



Interested in partnering with The Data Mine? We are now accepting projects for the 2024-2025 academic year.

What is the benefit to your company?

Talent Access: Work with highly motivated students from diverse backgrounds as a training ground to recruit for internships and full time employment opportunities.

Build Company Recognition: Set yourself apart from the big tech companies and build positive working relationships with students outside of the typical recruitment strategies.

Test Proof-of-Concept Projects: Experiment ideas with innovative students and see what they can create before putting tremendous internal company resources toward a data project.

Completing Value Add Projects: Back-burner projects that are known to add value and could benefit from more resources like time and talent.

(Next page shows some of our 2022-2023 student site visits)



CAT students tour the plant



JD Finish Line students visited HQ to tour, learn, and present to leadership



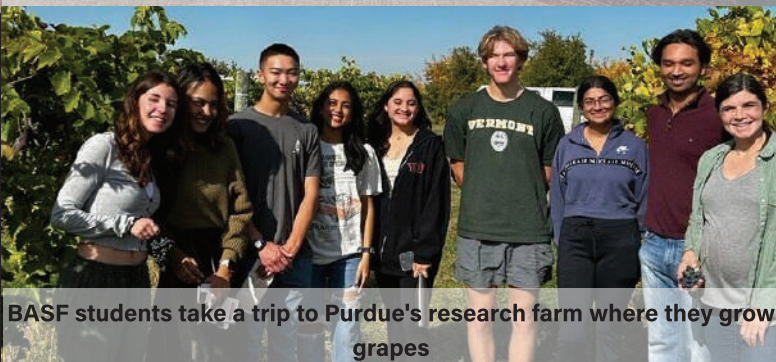
Students spend time with their mentor in Greenfield, IN at Yamaha



Subaru Automotive of Indiana student team at SIA in Lafayette



TDM students at the annual Merck-Purdue Symposium where they presented to Merck scientists and faculty



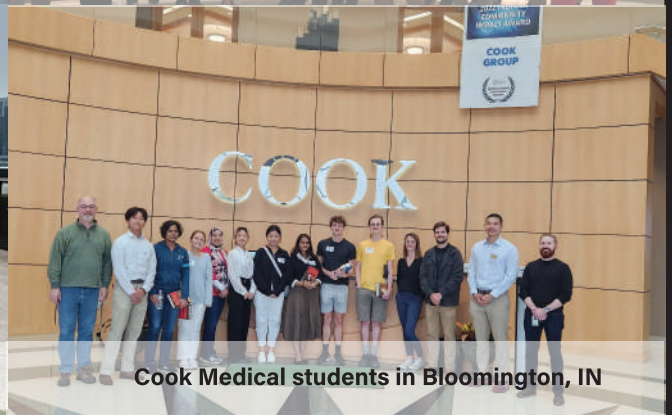
BASF students take a trip to Purdue's research farm where they grow grapes



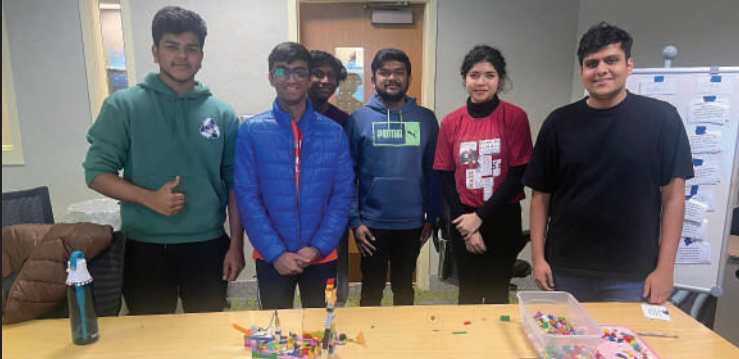
Students visit Ford HQ



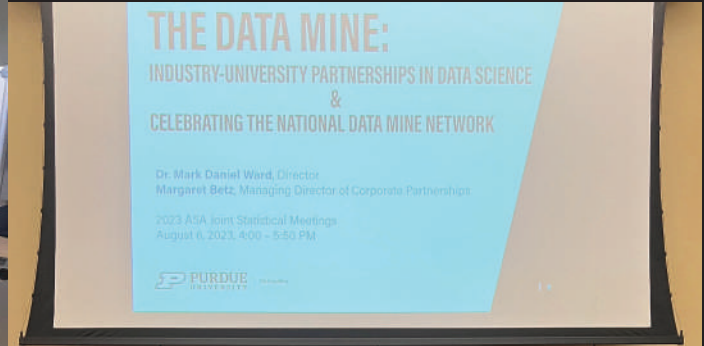
Our John Deere teams visited Chicago to tour the building and learn more about the company



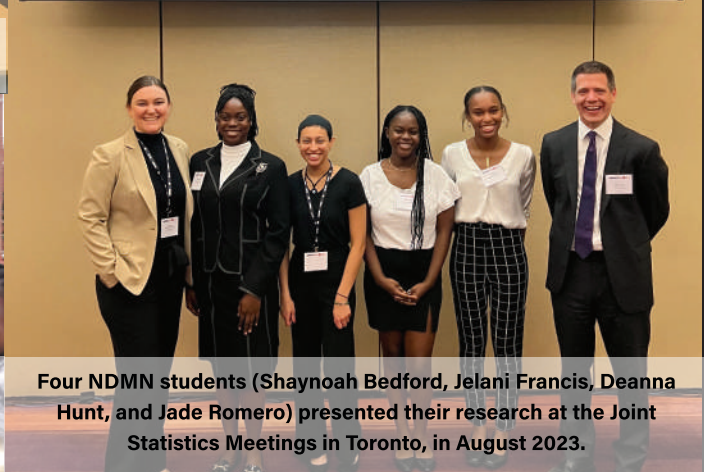
Cook Medical students in Bloomington, IN



Agile Lego activity work. This is part of the onboarding process for corporate partner teams.



Mentors and students take a ride on the Boilermaker Special at the symposium!



Four NDMN students (Shaynoah Bedford, Jelani Francis, Deanna Hunt, and Jade Romero) presented their research at the Joint Statistics Meetings in Toronto, in August 2023.



A group shot at the symposium featuring students and faculty from Purdue University, Youngstown State, and Purdue Fort Wayne.



More Agile Lego activity work.



Picture of the Symposium in the Purdue Memorial Union April 2023

DATA MINE IMPACT '22-23

1,178

STUDENTS

82

PROJECTS

1,036

UNDERGRADUATE
STUDENTS

164

MAJORS
REPRESENTED

142

GRADUATE
STUDENTS

48

UNIVERSITY
PARTNERS

60

COMPANIES

4

SPONSORED
RESEARCH
CONTRACTS

ANNUAL SYMPOSIUM 2023

2023 was the first year that we were able to host our symposium in person. With over 80 project posters featured, more than 1500 people showed up to view the students' work. Be sure to save the date for our next Symposium on April 24 from 4-6:30 PM at the Co-Rec (France A. Cordova Recreational Sports Center). If you are a current corporate partner mentor, be sure to check out the extended mentor session information!



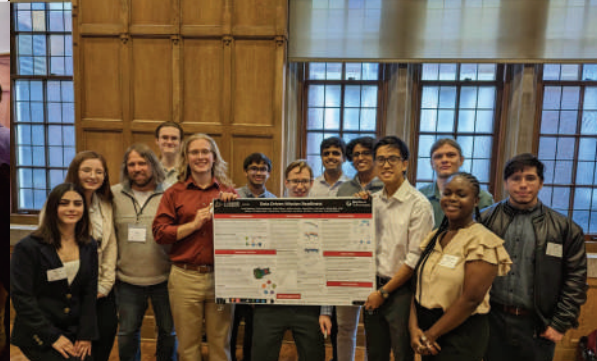
Dr. Ward giving a State of the Union update at the symposium



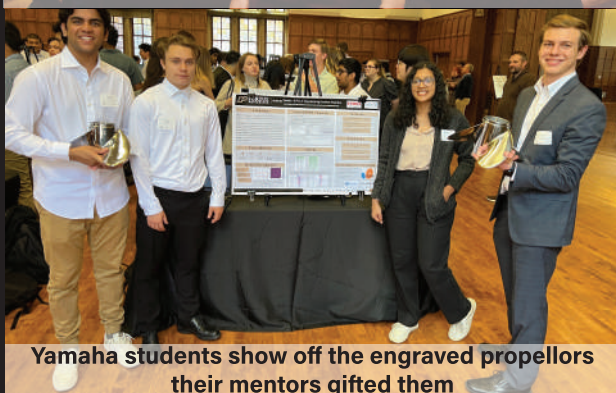
Students presenting at the symposium



John Deere students pose in front of their poster



Raytheon team with mentor, Mike Douglass



Yamaha students show off the engraved propellers their mentors gifted them



BASF students presenting

EXPANSION INITIATIVES

124 NATIONAL DATA
MINE NETWORK
STUDENTS

58 INDIANA DATA
MINE STUDENTS

48 STUDENTS AT OTHER
UNIVERSITIES

STUDENTS IN 20 STATES

AL, AZ, CA, CO, DC, FL, GA, IL, IN, MD, MN, NC, NM, NY, OH, TN, TX, VA, VI, WV

24 MAJORS REPRESENTED*

**National Data Mine Network data only*

What Supports The Data Mine's Expansion Initiatives?

NSF - National Data Mine Network The National Data Mine Network will directly fund 300 undergraduate students at MSIs with research stipends (100 stipends per year), administered directly to students by the ASA. Students are either working on research with faculty mentors or on Corporate Partners projects with mentors from industry.

Lilly Endowment The Indiana Data Mine (IDM) seeks to transcend traditional course-based education and boost the value proposition of data science-related skills. It aims to create a statewide ecosystem where students learn in-demand data science through hands-on projects with Corporate Partners. Participating companies also benefit as they adopt Industry 4.0 practices that increase efficiency and form relationships with potential employees. In addition, collaborations with high schools and youth-serving organizations will strengthen long-term pathways to college and increase students' familiarity with in-demand careers and skill sets.

NSF - DEAF PODS (Developing Experiential Accessible Framework for Partnerships and Opportunities in Data Science (for the Deaf community) program. Bringing together data sciences and the Deaf community using experiential learning, supported skill development and language access to expand the workforce. The Data Mine (TDM) coordinated 3 research teams comprised of 19 student researchers altogether, working with 3 Corporate Partners, in Spring 2023. For Summer 2023 TDM coordinated 6 teams including 30 student researchers altogether, working with 5 Corporate Partners.

STUDENT SPOTLIGHT

LAWRENCE ANDREW "DREW" SUKOVA

I'm Drew, a Senior at Purdue, and I want to share my journey – a fusion of Data Science and Philosophy, shaped by small-town roots in Brownsburg, Indiana.

From my Freshman year, I immersed myself in The Data Mine, exploring the depths of curiosity. Corporate Partners became a significant chapter in my Sophomore year, leading me to the Purdue Athletics Ticketing project, a dynamic intersection of data visualization and sports analytics.

The mentorship of Brian Fordyce has been pivotal, fostering not only the project's continuity but also providing me with vital leadership opportunities. Leading a team within the Data Mine has done wonders for my confidence and management skills.

In leisure, my wife and I enjoyed Marvel movies and TV shows, surprising even myself, a non-Marvel fan. Before that, it was the Avatar duology and cherished Pixar movies on Disney Plus.



STUDENT/COMPANY HIGHLIGHTS

Emmani Ellis graduated in December 2023 with a double-major in Mechatronics Engineering Technology and Robotics Engineering Technology. Working closely with The Data Mine, she founded No Limit Living, a new startup company that emphasizes real estate investment opportunities in Gary, Indiana.

Claudia Duncan Franchville graduated from Purdue in May 2022 and joined Cummins full time as a Data Scientist, where she continues to be an excellent mentor for new generations of Purdue students. During her student years, we created a video featuring Claudia's work at Cummins ([click to view](#)). The Data Mine team is thankful for her role in fostering the Cummins-Purdue relationship.

MORE TDM UPDATES

THE DATA MINE AMBASSADOR PROGRAM

Our student Ambassador Program is a new, student-led initiative that aims to create a bridge between The Data Mine and the student body. We have selected enthusiastic and responsible students to represent The Data Mine, both on and off campus. The Student Ambassadors serve as liaisons between students, faculty, and prospective students, helping to foster a sense of community and engagement.

Key responsibilities of Student Ambassadors include providing campus tours, participating in recruitment events, and sharing their positive experiences with the institution. They play a vital role in promoting The Data Mine, building a welcoming environment, and contributing to the overall student experience. Through their interactions with peers and prospective students, Student Ambassadors help showcase the unique aspects of The Data Mine and contribute to its positive reputation.



WHAT TO EXPECT IN 2024-2025 FROM THE DATA MINE

We have some big goals for the 2024-25 academic year centered around: **our people** (students, staff, partners, etc.), **impact** (expanding, increasing, reaching more companies, students, and providing them with a great experience), **building and continually improving** the technical computing environments and analytics content that helps students and mentors conduct experiential research, and **enhancing, sustaining, and cultivating partnerships**.

Our mission is **Data Science for all** with a vision of *Democratizing data science for all, fostering inclusivity, hands-on learning, and diverse communities while lowering entry barriers.*

We invite you to join us on our journey! Contact us with any questions: datamine@purdue.edu.

**SCAN THE QR CODE
TO STAY IN TOUCH**



The Data Mine

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