



Research Park

Presented to Joint Committee on Appropriations
2025 South Dakota Legislature

February 6, 2025



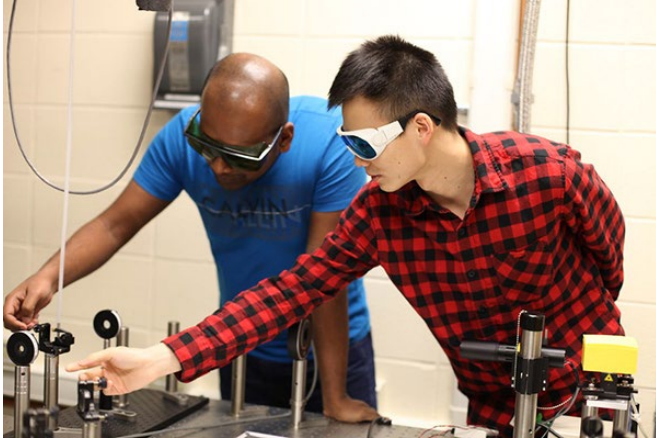
SOUTH DAKOTA MINES®

Vanderboom Laboratory for Entrepreneurial Research (V-Lab)

- 40,000 sq. ft. of research space purchased in 2022 thanks to support from the state legislature
- \$2M donated by alumnus Steve (CEE 74) and Julie Vanderboom for lab renovations
- **Home to:**
 - Arbegast Materials Processing & Joining Lab
 - Governor's Research Center for Understanding and Disrupting the Illicit Economy
 - Center for Sustainable Solutions
- **Coming Soon:** Tissue Engineering and Soft Materials Lab



Research Spotlight: Quantum Materials Institute



\$5M NSF grant to advance quantum computing and secure quantum communications

- Produce materials used for energy-efficient devices that will make computing faster and more secure
- Technology will impact a wide range of industries from telecommunications to healthcare

Mines offers a graduate and undergraduate certificate in Quantum Communications

A minor in Quantum Information Science is in the planning phase



Thank you to the 2024 legislature and Gov. Noem for \$3M to support the Center for Quantum Information Science and Technology at Mines and DSU



Startup Ecosystem

Faculty Startups

Fermigenix
Shende LLC
Cellfield
BioBest
InovaSkin
Endlas
CEO Universal Exports LLC
Dragon Materials
Amber Aqua

Licensed Technology

Trion
VRC Metal Systems
Novum Nano
CellField
Hunter Moyer

SBIR/STTR

VRC Metal Systems
Novum Nano
Tri-Austin
Lynn Tech
Shende LLC
Nalas Engineering



R&D and Student Projects with South Dakota Organizations



Ellsworth Air Force Base Collaborations

Student Projects

- Childcare finder app
- Deicing optimization
- Snow removal efficiencies
- Airfield concrete spalling cause/mitigation
- Resilient energy decision matrix
- Line Replaceable Unit Lifting Device
- Improved Swing Arm Gates Fellowship
- Traffic management study

Unfunded Requirements Fellowship

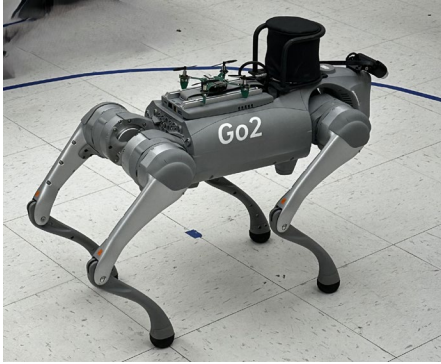
- John Barbor, 1st place 2023 Giant Vision
- Startup company in Rapid City

Mobile Cold Spray System

- Perform cold spray restorations on the flightline



National Security Focus



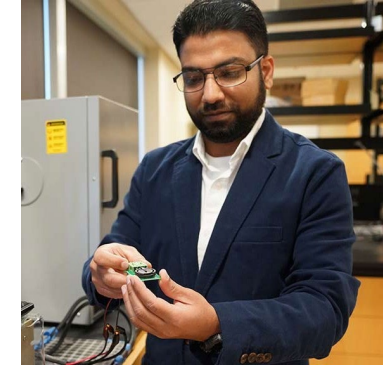
Deterrence

- Additive manufacturing and advanced materials
- Cyber and data infrastructure
- Survivability of forces



Supply Chain

- Strategic materials and energetics for munitions
- Domestic production of critical components
- Artificial intelligence



Energy & Natural Resources

- Energy storage technologies
- Energy production technologies
- Soil and water health
- Decarbonization solutions



Innovation District

Elevate Rapid City received an EDA Strategy Development Grant to create workforce and market development and space plans

South Dakota Mines is one of 8 organizations in the planning consortium

Final plans to be delivered in Summer 2025

The plan makes Rapid City eligible to apply for Tech Hub designation and future funding



A large crowd of people, likely students, is shown at a sporting event. The image is overlaid with a dark blue filter. A central rectangular frame with a gold border highlights a group of students in the foreground. One student in the frame is wearing a black t-shirt with the text "NATIONAL SARCASTIC SOCIETY" and "SUPPORT" below it. Another student in the frame is wearing glasses and a light-colored shirt. The text "THANK YOU" is overlaid in white, bold, sans-serif font across the center of the frame.

THANK YOU

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