

A group of approximately 15 students, mostly men, are gathered at an outdoor construction site. They are wearing high-visibility yellow safety vests and hard hats (some yellow, some white). In the background, there is a yellow JCB telehandler with 'United Rentals' and 'JCB' branding, and a white truck with 'GlobalMachinery.com' and 'XQ230' visible. The students are looking towards the camera, some smiling. A large, light-colored diagonal graphic element is on the left side of the image.

CU HYPERLOOP

SPONSORSHIP PACKET 2023-2024



Dear Prospective Sponsor,

We are CU Hyperloop, a diverse team of engineering and business students from the University of Colorado Boulder.

For six years, we have competed on the international stage, first at SpaceX's Hyperloop Pod Competition, more recently at The Boring Company's Not-a-Boring Competition, where we placed third in the world. Our mission is to push the boundaries of high speed, cost effective tunneling while empowering our team to tackle real world, interdisciplinary engineering.

As a sponsor, you'll have the opportunity to work closely with us, contribute to our vision, and recruit directly from the team. We are a highly qualified and committed to achieving success both academically and in our extracurricular activities. We invite you to join us on this exciting journey and become a part of the CU Hyperloop team.

Sincerely,

Ferin Von Reich
Project Manager

A RICH HISTORY OF SUCCESS

In 2017, we reached the semi-finals of the SpaceX Hyperloop Pod Competition, continuing to do so for three years in a row. After the Hyperloop Pod Competition ended in 2021, we moved to the Not-A-Boring-Competition and advanced to the finals in the first year of Competition. That year, we were one of only two teams to successfully test their full-scale tunnel support system, and placed in the top six globally.

For the 2022-2023 competition cycle, we become the top team in North America, and secured third place internationally. In that competition. We also won the Accuracy Award for our autonomous navigation and guidance system. We are now competing in the 2024 Not-A-Boring Competition and aim to exceed our previous achievements while maintaining our culture of excellence.



CU-Boulder Team to Compete in Tunnel Boring Contest

A team of University of Colorado Boulder students has been building a tunnel boring machine in preparation for a contest hosted by a company founded by Elon Musk.

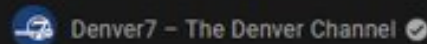
AP CU-Boulder team to compete in tunnel boring contest

CU-Boulder team to compete in tunnel boring contest

By KATIE LANGFORD August 14, 2021

CU Boulder's Hyperloop team 1 of 12 chosen for Elon Musk competition

296 views • 1 month ago



What may be the future of transportation is getting built by a group of University of Colorado Boulder students

Digging for innovation

Local hyperloop team to compete in international tunnel boring contest

The goal is to dig a tunnel that is 100 feet long and 10 feet wide. The team will be competing against other teams from around the world. The contest is being held in Boulder, Colorado.



THE PATRICK DOLAN TEAM 303.443.3442

2022-2023 Tunnel Boring Machine (TBM)

The Not-Boring-Competition is an annual event where teams build machines to dig a 2ft diameter, 100ft long tunnel as quickly as possible. Last year, we designed a tunnel boring machine which weighed 1700 pounds and was just over 12ft long. It used multiple subsystems to dig autonomously at speeds up to ten times faster than industry leaders. With two iterations of the machine already complete, the team plans to expand on its previous work to become the first team to successfully complete the entire tunnel at the 2024 competition.

Software + Electrical

The machine is equipped with eight microcontroller nodes that control and monitor a multitude of actuators and sensors. Networked to the ground station using robot operating system (ROS), the machine uses these resources to run fully autonomously during a dig.

Hexapod

A 6-axis Stewart platform that pushes the cutting head forward. It provides 60 kN of propulsion force and allows for propulsion with six degrees of freedom underground.

Tunnel Support

A collapsible system stores 100ft of tunnel support structure, made of tarp and steel rings, in the back of the machine, releasing it throughout the dig to support the tunnel.

Soil Removal

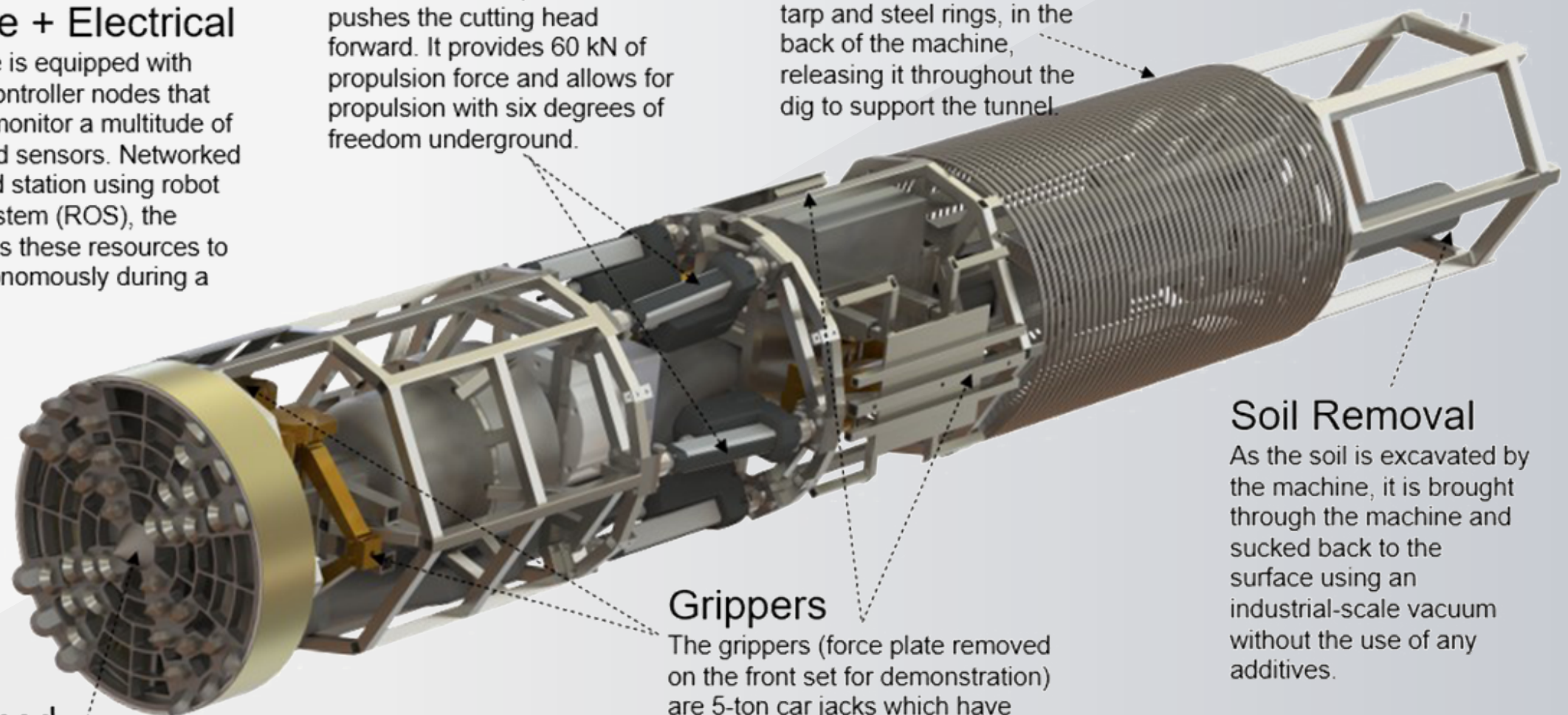
As the soil is excavated by the machine, it is brought through the machine and sucked back to the surface using an industrial-scale vacuum without the use of any additives.

Grippers

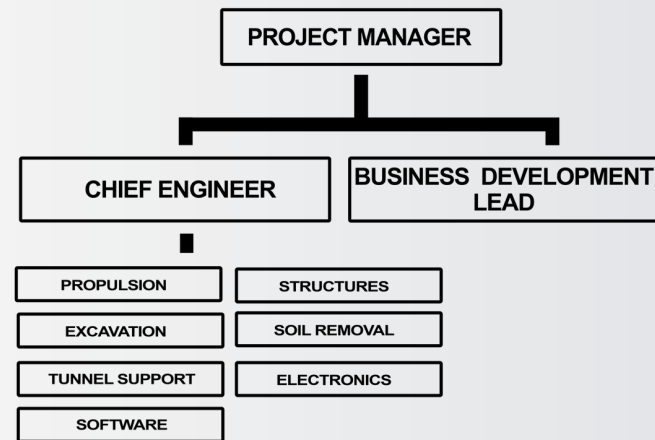
The grippers (force plate removed on the front set for demonstration) are 5-ton car jacks which have been repurposed to work with our PCBS. They push against the tunnel wall and give the hexapod something to push against.

Cutter Head

The cutter head spins at about 3rpm and is capable of withstanding 2500 Nm of torque. It is powered by a repurposed electric car motor.



MEET THE TEAM



Our team is an exceptional group of highly qualified individuals with a passion for innovation and engineering excellence. Composed of a multitude of majors including aerospace, mechanical, electrical, computer science, civil, and business, our team is interdisciplinary and committed to achieving success both academically and in our extracurricular pursuits. Our organization structure promotes collaboration and educational growth, and our leaders are committed to ensuring that our team members have the resources and support necessary to excel.

We take great pride in our work and approach every project with a deep sense of professionalism and dedication. Our team is highly respected within the engineering community, and we are confident that our accomplishments speak for themselves. As such, we would be honored to have your support as we continue to push the boundaries of innovation and engineering excellence.



Team alumni take full time positions at:

- The Boring Company
- Blue Origin
- NASA JPL and Johnson
- Apple
- GE Propulsion
- And more!

Or continue to education at:

- MIT
- CU Boulder
- UT Austin
- And more!

SUBTEAMS

Hyperloop hosts three administrative roles: the Project Manager, Chief Engineer, and Business Development Lead. Collaboratively, they oversee financial operations, streamline processes, and spearhead development efforts. In addition, seven dedicated engineering teams focus on design and fabrication of various components. These teams collaborate with the administration to facilitate testing and deployment of our TBM.

PROPULSION

moves the machine forwards underground. For the 2023 competition, two sets of grippers and a Stewart platform worked autonomously to propel the machine.

STRUCTURES

ensures the structural integrity of the machine and handles part integration. Structures is heavily involved with manufacturing, materials and design.

EXCAVATION

designs and manufactures the excavation system. This multilayered systems digs and churns soil before feeding it to the soil removal system.

ELECTRONICS

designs all the printed circuit boards (PCBS) which control sensors and actuators in the machine. They also design the power system for the machine, ensuring safe operation at high current conditions.

SOIL REMOVAL

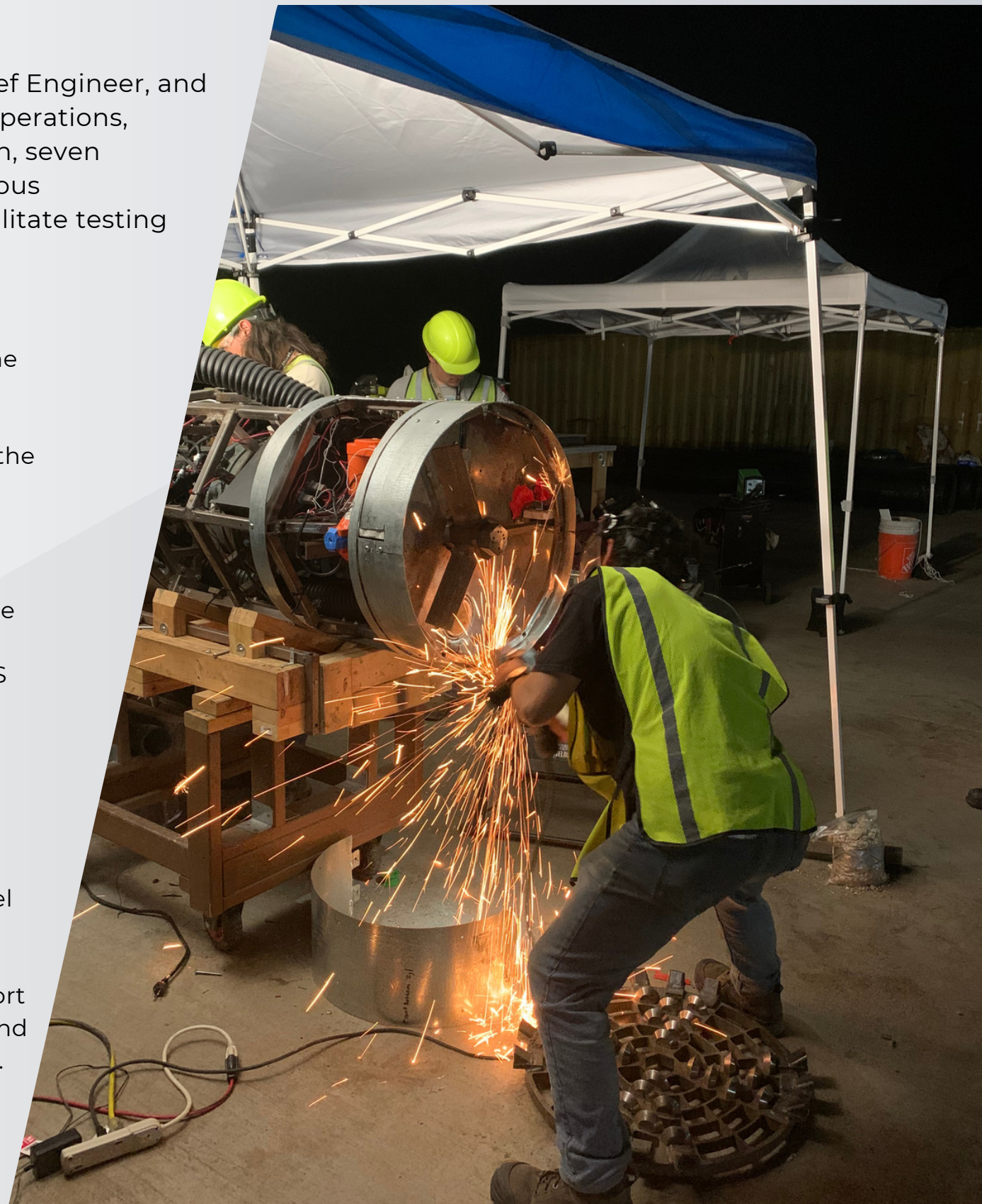
tasked with extracting soil from the cutter head. Our 2023 solution involved a construction-grade vacuum that sucked soil through the machine.

SOFTWARE

architects and implements all code that controls the machine. This includes the microcontrollers, ROS network, ground station control, inverse kinematics, GNC, and the operator GUI.

TUNNEL SUPPORT

supports the integrity of the tunnel as the machine digs. For the 2023 competition Tunnel Support designed a retractable 100ft support system that condensed to 5 feet and travelled with the boring machine.



SPONSORSHIP TIER LIST

TITLE SPONSOR

\$100,000 or More (Limited to a single Entity)
All Below Plus:
Sponsor Name incorporated into name of the team

PLATINUM TIER

Platinum: \$20,000 or More (at least \$5000 cash)
All Below Plus:
Company Description on Website
Logo Prominently Featured on TBM
Logo Prominently Featured on Team Apparel
Availability for Display of TBM at corporate locations and events post competition
Annual Video posts
Promotion During all media interviews and public appearances

GOLD TIER

Gold: \$10,000-\$19,999 OR \$20,000+ (With less than \$5000 cash)
All Below Plus:
Biannual Written Media Post on Website
Large Logo on Back of Team Apparel
Quarterly social media posts
Access to team members via dedicated recruiting events
Availability of team members for presentations and events
Tour of team facilities

SILVER TIER

Silver: \$5,000 - \$9,999
All Below Plus:
Larger Logo on TBM and back of team apparel
Email List of All Current team members
Biannual Social Media Posts
Invitation to attend the 2024 Not-Boring-Competition as guest
Invitation to CU Boulder Engineering Immersion

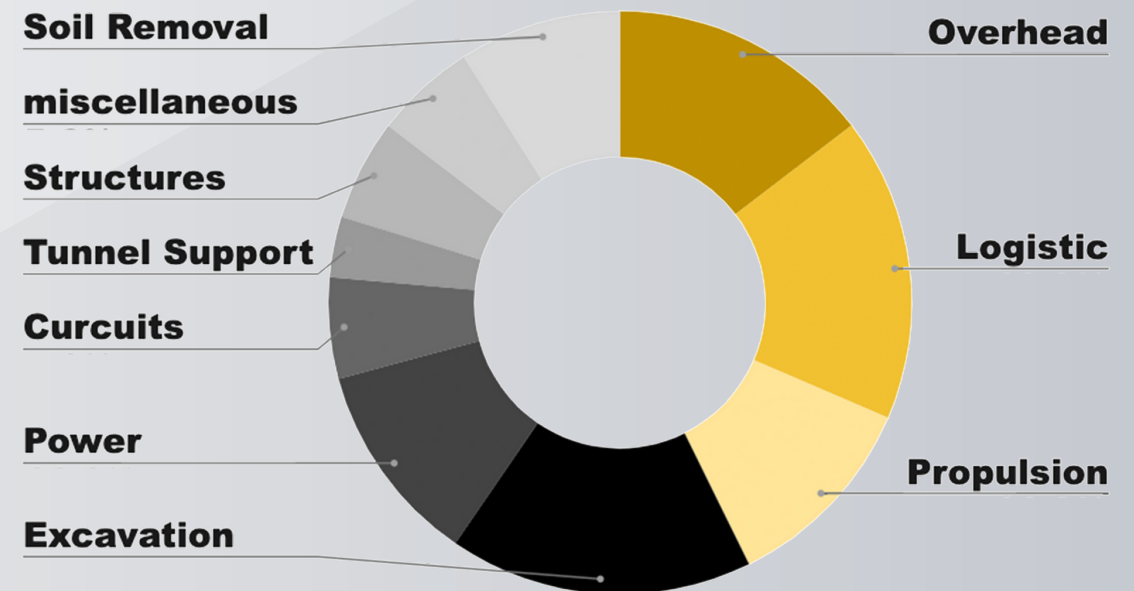
BRONZE TIER

Bronze: \$1,000 - \$4,999
All Below Plus:
Logo on the TBM
Logo or name on back of team apparel
Annual Media Post on the Social Media accounts
Access to the Resume Book of current members
Promotion During Public Appearances
Promotion in team newsletter

CREW

Crew: less than \$1000
Logo on Website sponsors section
Tax Recognition

BUDGET BREAKDOWN



Hyperloop



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CONTACT US!

CUHYPERLOOP@COLORADO.EDU

MAX BALASUBRAMANIAM
CHIEF ENGINEER
720-440-3306

FERIN VON REICH
PROJECT MANAGER
970-889-5437

HENRY SCOTT
BUSINESS DEVELOPMENT LEAD
610-945-8180