

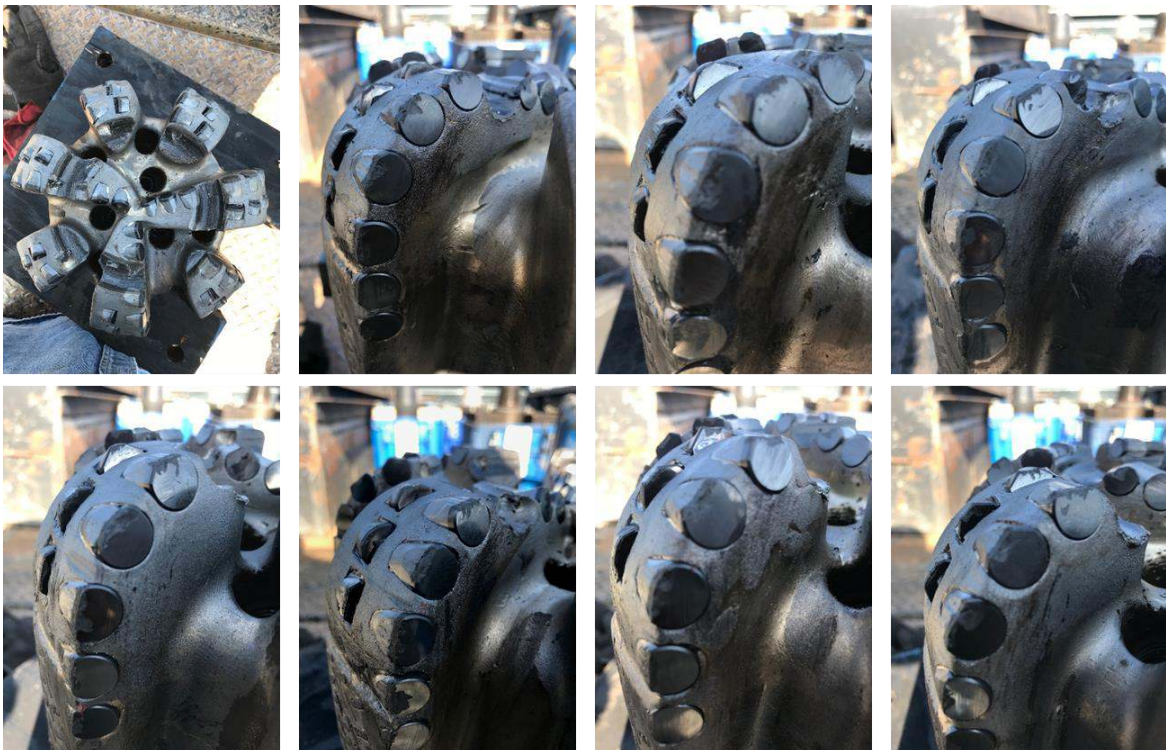
## Introduction

The Drilling Uncertainties and Prediction Technical Section (DUPTS) was established to support drilling planning and execution challenges through the use of artificial intelligence, machine learning and data science solutions. DUPTS currently has more than 2,000 members distributed globally, covering NOC, IOC, academia, and service companies.

To promote the use of AI in the industry, this section organized a student competition last year with the goal of developing ML techniques to detect, assess and correct real-time drilling sensor data. This year, we extend the competition to the use of ML to automatically diagnose root cause of bit failure from bit images.

## Task Goal

- Develop an algorithm, that when given a set of bit images, will identify the root cause of drill bit failure.
- Bit photos will be provided for the purpose of training. Evaluation will be done on a blind set of bit photos.





# SPE-DUPTS Drilling Data Competition 2022

## Registration

Students can register for this competition as individuals or in a team of 2-5 members. Non-students can be part of the team as long as the team has at least one student.

## Data

Training data for this competition will be provided to the students. They are however free to use any additional datasets they have access to.

## Evaluation

The work will be evaluated by Subject Matter Experts in Drilling and Data Science. The solutions will be evaluated based on the following criteria:

- The accuracy of the algorithm in detecting the root cause of bit failure
- Robustness of the solution
- Technical details presented in the report

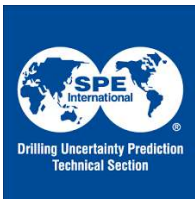
## Deliverables

The required deliverables are two-fold:

1. An exe file, or a web page onto which test bit images can be loaded to be diagnosed and graded. The software or webpage should provide an automated report indicating the cause of damage of the drill bit.
2. A report detailing the approach. The report should contain the following details:
  - Abstract
  - Literature Review
  - Approach Methodology
  - Testing and Validation Result
  - Conclusion
  - List of Team members

## Awards

The top 3 solutions will be given an opportunity to present during DUPTS monthly webinar, and prize money.



# SPE-DUPTS Drilling Data Competition 2022

## Timeline

- Announcement: Jan 15th, 2022
- Pre-Registration Q&A Session: Feb 17<sup>th</sup> 08:00 AM CST
- Registration Deadline: Feb 28th, 2022
- Guest lectures by SME on topics related to Drill Bit Forensics: March / April 2022
- Draft Report Submission: May 25th, 2022
- Final Report and Software Deadline: June 15th, 2022
- 2022 Winners Announcement: July 15th, 2022
- Presentation: August 2022

## SPE DUPTS

Learn more about SPE DUPTS here

<https://connect.spe.org/dupts/home>

## Registration Form

<https://forms.office.com/Pages/ResponsePage.aspx?id=YPtj3fYHlk2NQOvsphpSTqInQ0bdSqNLi6FhMIILNtNUNkJHTFRVSlc1R1c0VIJPN1QwWFYwRDFJV4u>

## Contact Information

Please contact any of the below committee members if you have any questions before the Feb 17<sup>th</sup> zoom session.

Wael Ziadat: [wael.alziadat@weatherford.com](mailto:wael.alziadat@weatherford.com)  
 Pradeep Ashok: [Pradeepkumar@mail.utexas.edu](mailto:Pradeepkumar@mail.utexas.edu)

## Pre-Registration Q&A Session:

Feb 17<sup>th</sup> 08:00 AM CST

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Meeting URL:	<a href="https://utexas.zoom.us/j/97927502357">https://utexas.zoom.us/j/97927502357</a>
Meeting ID:	979 2750 2357
Telephone Numbers:	<a href="https://utexas.zoom.us/j/97927502357">https://utexas.zoom.us/j/97927502357</a>