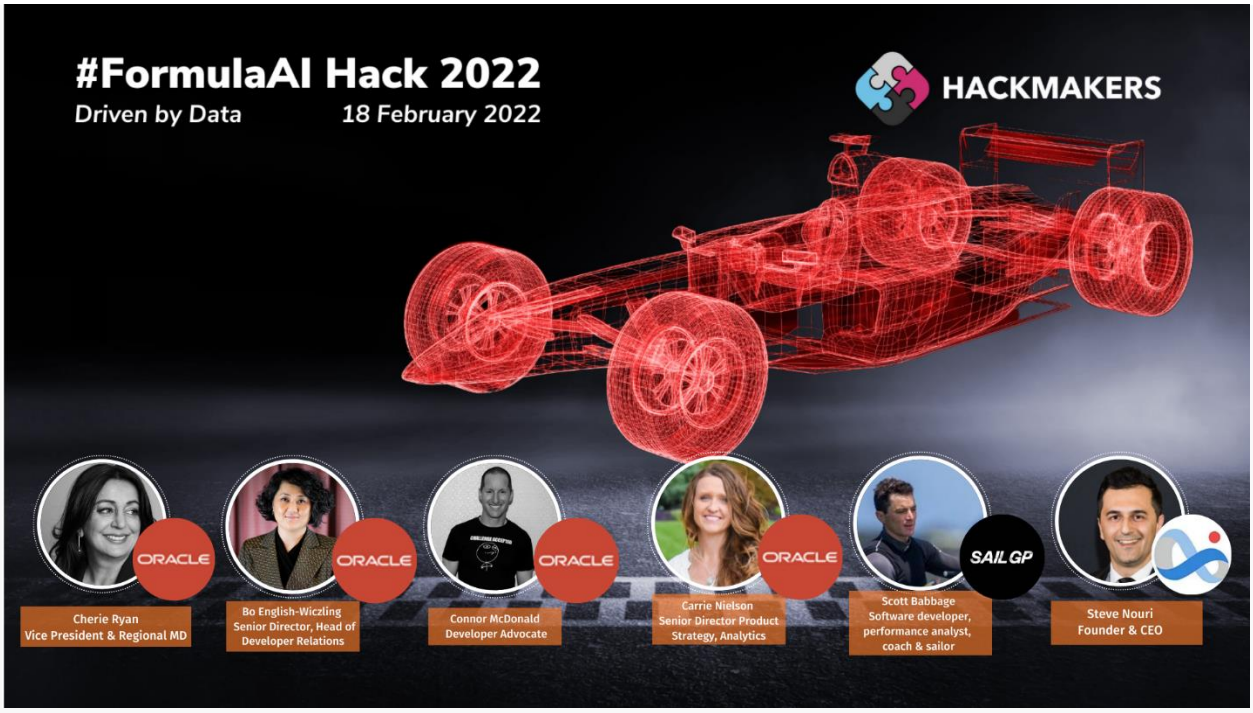

#FormulaAI Hack 2022 Challenge 3: 3D Modelling

Metaverse is booming and it is about to create a whole new interaction paradigm. Since Metaverse is relying on 3d assets that usually take a bit of time to model manually, we believe that using data to programmatically create 3d assets will benefit whole industry going forward. Using AI to programmatic create 3d asset is not a new concept and there are many Research & Development papers applying AI for various use cases spanning across animations, shaders, sculpting or converting 2d images to 3d assets.

Github link: https://github.com/oracle-devrel/formula-ai-2022-hackathon/blob/main/challenges/challenge3.md

Challenge 3 APIs

Name: Session API
Purpose: There were multiple game sessions that have been played and data collected. Each dataset is a single game session.
Endpoint URL: https://apigw.withoracle.cloud/formulaai/sessions
Parameters: None
Data Structure:
- M_SESSIONID (number) - unique game session id
- M_GAMEHOST (string) - game machine id
- TRACKID (string) - track name
- DRIVER (string) - driver name
- SESSION_TIME (string) - start time of session (in EPOC milliseconds)
- LAPS (number) - number of laps raced in that session

Sample Data:


```
[{"M_SESSIONID":"1127492326198450576","M_GAMEHOST":"FormulaAI","TRACKID":"Texas","DRIVER":"For
mulaAI","SESSION_TIME":"1645163520504","LAPS":3},{"M_SESSIONID":"4343711350942679131","M_GAMEH
OST":"FormulaAI","TRACKID":"Melbourne","DRIVER":"FormulaAI","SESSION_TIME":"1645161571115","LA
PS":1}]
```


Name: Track Data API
Purpose: Each dataset is a single data point in a game session of a car driving, mapping out the track. There are four lines (left, right, centre and reference).
Endpoint URL (template) : https://apigw.withoracle.cloud/formulaai/trackData/:session/:lap
Parameters:
- session (mandatory) - unique game session id (accessible from Session API)
- lap (mandatory) - lap number (1 is the first lap)
Examples:
- https://apigw.withoracle.cloud/formulaai/trackData/14723197675720646148/1 (left side of track)
- https://apigw.withoracle.cloud/formulaai/trackData/3447308828675135472/1 (right side of track)
- https://apigw.withoracle.cloud/formulaai/trackData/642458675160155 1341/1 (centre of track)
Data Structure:
- M_SESSION (number) - unique game session id (accessible from Session API)
- FRAME (number) - unique frame id that is ordered
- RACETIME (datetime YYYY-MM-DD HH24:MI:SS) - local time of the race (in seconds)
- CURRENT_LAP_NUM (number) - current lap number
- SECTOR (number) - current sector on the track (0 is the first sector)
- LAST_LAP_TIME_IN_MS (number) - lap time of previous lap (in milliseconds)
- SPEED (number) - current speed (in KPH)
- LAP_DISTANCE (number) - current distance driven in lap (in metres)
- WORLDPOSX (number) - world space position x coordinates
- WORLDPOSY (number) - world space position y coordinates
- WORLDPOSZ (number) - world space position z coordinates
- WORLDFORWARDDIRX (number) - forward world x direction (normalised)
- WORLDFORWARDDIRY (number) - forward world y direction (normalised)
- WORLDFORWARDDIRZ (number) - forward world z direction (normalised)
- WORLDRIGHTDIRX (number) - right world x direction (normalised)
- WORLDRIGHTDIRY (number) - right world y direction (normalised)
- WORLDRIGHTDIRZ (number) - right world z direction (normalised)
Sample Data:


```
[{"M_SESSION":10466290306677175747,"FRAME":447,"RACETIME":"2022-02-18
13:29:20","CURRENT_LAP_NUM":1,"SECTOR":2,"SPEED":246,"LAP_DISTANCE":-
0.6923828125,"WORLDPOSX":563.0005493164062,"WORLDPOSY":464.94561767578125,"WORLDPOSZ":-
10.210302352905273,"WORLDFORWARDDIRX":18661,"WORLDFORWARDDIRY":94,"WORLDFORWARDDIRZ":38603,"WO
RLDRIGHTDIRX":26933,"WORLDRIGHTDIRY":65415,"WORLDRIGHTDIRZ":18661},{"M_SESSION":10466290306677
175747,"FRAME":448,"RACETIME":"2022-02-18
13:29:20","CURRENT_LAP_NUM":1,"SECTOR":0,"SPEED":247,"LAP_DISTANCE":2.752800464630127,"WORLDPO
SX":561.0401611328125,"WORLDPOSY":462.1197814941406,"WORLDPOSZ":-
10.20139217376709,"WORLDFORWARDDIRX":18774,"WORLDFORWARDDIRY":46,"WORLDFORWARDDIRZ":38681,"WOR
LDRIGHTDIRX":26855,"WORLDRIGHTDIRY":65433,"WORLDRIGHTDIRZ":18774}]
```

Track Mapping Session:
The following session identifiers refer to the car driving along a certain line on the Melbourne Track.
- 14723197675720646148 - Session identifier that refers the car mapping the left side of the track
- 3447308828675135472 - Session identifier that refers the car mapping the right side of the track
- 6424586751601551341 - Session identifier that refers the car mapping the centre of the track
- 4343711350942679131 - Session that refers the car following a reference line.
To see what the reference line looks like, you can view it on Youtube here (https://youtu.be/dqDbA4gviyg)
References (for additional level of detail):
- https://github.com/jasperan/f1-telemetry-oracle/blob/main/telemetry_f1_2021/cleaned_packets.py