



Track Details

CACTUS

Company Name : Cactus Communications

of tracks you are sponsoring : 1

Prize Money amount details you will be sponsoring for each track: INR 25K

- **Winner : INR 15K**
- **First runner up : INR 10K**
- **Second runner up (optional) :** If there is a tie or two runner ups then both runner ups will get 5K each i.e splitting the 10K amount.
- **Consolation prize (optional) : -**

Track Name : AI4Researchers with Cactus Labs

Website(s) –

<https://cactuslabs.io/>

<https://paperpal.com/>

Logo(s) –

CACTUS LABS
IDEAS AT WORK



Problem Statement (s) –

A team should basically choose and work on any 1 problem statement only for the hackathon, whichever you are comfortable with w.r.t tech stack (Computer Vision or NLP)

1. Scientific Image Classifier (Computer Vision)

Description –

We are basically looking to build a tool that can classify Life Science images like Microscopies (confocal, light, fluorescence, and electron), Histology Slides, Pathology Slides, Western blot

bands, Gel Electrophoresis, Flow Cytometry (FC), Fluorescence activated cell sorting (FACS), Cell Culture, etc.

Input – Scientific Image (individual single image)

Output – Which image class does it belong.

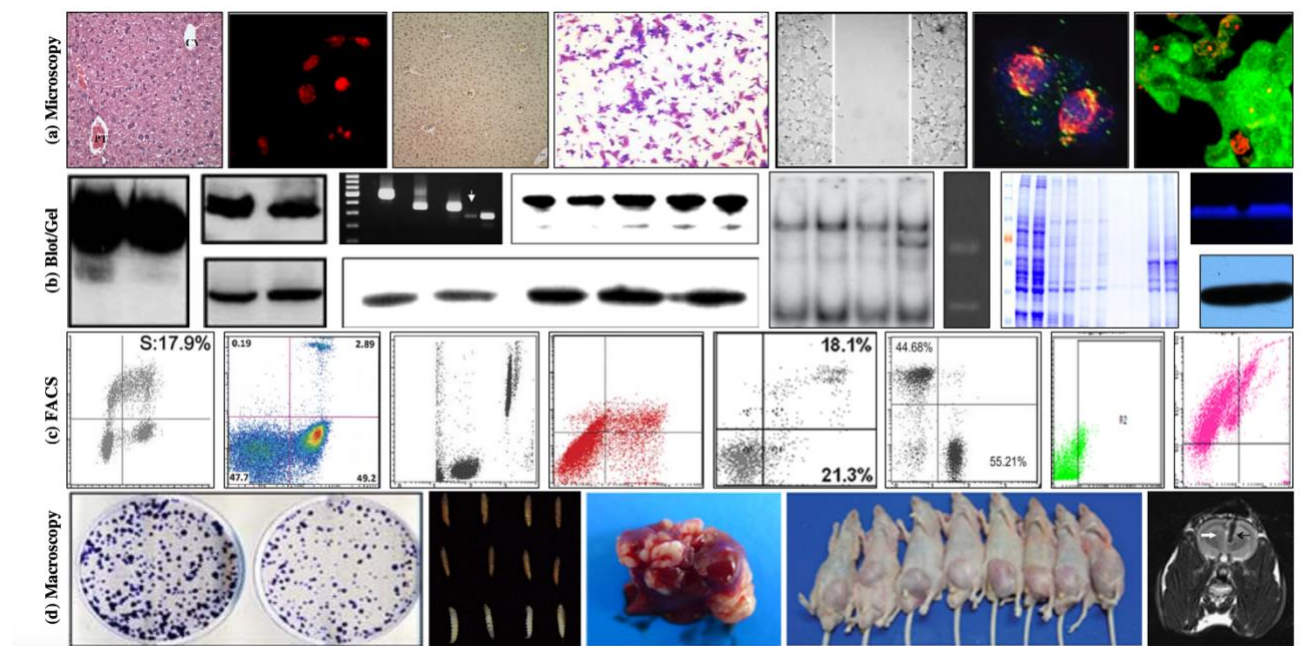
Deliverable – Classification approach, models (if pretrained), toy datasets/manually annotated datasets created for few shot learning/longer training.

References –

Dataset and Initial Repository - <https://github.com/vimal-isi-edu/BioFors>

Paper - <https://arxiv.org/pdf/2108.12961v1.pdf>

Note - During the hackathon, we'll try to provide you with a labelled dataset from our scientific subject matter experts but feel free to create your own splits from the biofors dataset or create/expand on it on your own.



2. ChatWithAnyScientificDocument

In the age of LLMs and multimodality, we have seen the rise of input not just as simple plain text but as documents in entirety. Many solutions out there work out of the box for taking PDF as input. Well, researchers and scientists use lots of different document types to create their research on beyond pdf - .docx, latex (.tex), .ppt (infographics/research slides). This also controls hallucinations in LLMs since it is extracting and presenting information only from documents provided by end user.

We want you to create a solution which can take input as atleast 2 or more doc types including pdf and making it ready to parse/send to any LLM. Bonus points for building a chat interface by

connecting this parsed document to any LLM (GPT/Llama/Mistral/Claude) and getting answers to the questions asked by the end user for the uploaded document.

Input –

1. Any research document/infographic in the file format of .pdf/.doc/.docx/.tex/.ppt
2. User query on the document

Output –

Successful parsing of the document and answer coming from any LLM for the user query based on the document.

Deliverable –

1. Document Parser for atleast 2 or more doc types. Special bonus points for supporting .tex and .ppt
2. Suggested questions/context from the documents via contextual understanding with LLM or any traditional NLP models in case you don't want to build chat interface.
3. User input question answering on top of the parsed document in case you are building the chat interface.

Example(s) –

<https://chatwithpdf.ai/>

<https://notebooklm.google/>

<https://github.com/Mintplex-Labs/anything-llm>

Sidenote: Brownie points and potential to get shortlisted for internship by registering and using [Paperpal](#) and [Preflight](#) on web and MS Word, looking at the existing checks and giving suggestion/feedback on overall product and discussing about how the hackathon projects can fit into the product(s) while presenting/talking with mentors :D

Mentor Details :

- 1) **Parth Agrawal**, AI Evangelist and Product Manager, Cactus Labs
 - **Linkedin** - <https://www.linkedin.com/in/htrap94/>
 - **Availability of mentors** – Throughout 3 days i.e 29th Feb to 2nd March
 - **For – Both problem statements**
- 2) **Bhargav Modha**, ML Intern, Cactus Labs
 - **Linkedin** - <https://www.linkedin.com/in/bhargav-modha/>
 - **Availability of mentors** – Throughout 3 days i.e 29th Feb to 2nd March
 - **For – Both problem statements**
- 3) **Uneet Singh**, Software Engineer (ML) , Cactus Labs

- **Linkedin** - <https://www.linkedin.com/in/uneetkumarsingh/>
 - **Availability of mentors** – On adhoc request on discord
 - **For – Both problem statements**
- 4) **Chaitanya Malhotra**, Software Engineer, Cactus Labs
- **Linkedin** - <https://www.linkedin.com/in/chaitanya-malhotra-05973013b/>
 - **Availability of mentors** – On adhoc request on discord
 - **For – Scientific Image Classifier**
- 5) **Pooja Mehta**, Team Lead, Big Data , Cactus Labs
- **Linkedin** - <https://www.linkedin.com/in/pooja-mehta-9986b913a/>
 - **Availability of mentors** – On adhoc request on discord
 - **For - ChatWithAnyDocument**
- 6) **Kshitij Sabarwal**, Senior Software Engineer, Cactus Labs
- **Linkedin** - <https://www.linkedin.com/in/kshitij-sabarwal-5647ab169/>
 - **Availability of mentors** – On adhoc request on discord
 - **For - ChatWithAnyDocument**

Evaluation Details :

- Evaluation will be done based on
 - How accurate the classification/document parsing is (40%)
 - Working demo (30%)
 - Presentation and Engagement with Mentor (20%)
 - Tech Scalability (10%)

Signature: Parth Agrawal, Cactus Communications