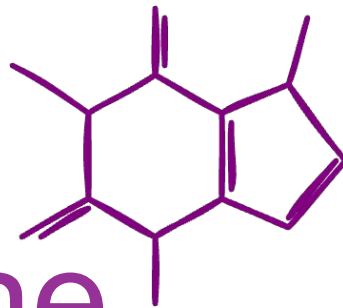


Mentees :

- Luis Eduardo Martínez Hernández
- Ansah Mohammad Kuriyodath
- Michaël Rollin

Mentor : Iskandar Sitdikov



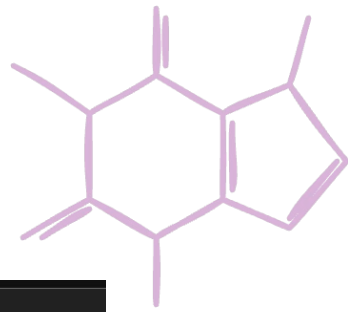
PurpleCaffeine

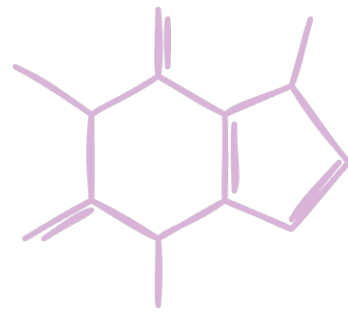
Tracking quantum experiments

What? and why?

PROBLEM:

- Lot of experiments with lot of data
- Jupyter notebook cells are always overwritten, it is hard to remember what parameters were used and which results you got in previous executions
- No sharing between researchers



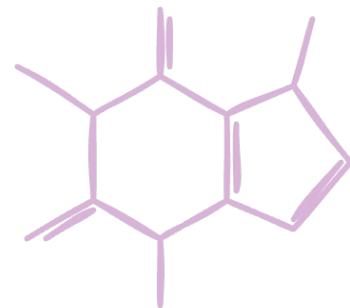


Video




MVP goals 100% ✓

- Functional US :
 - Working python lib with local backend ✓
 - Working python lib with Api backend ✓
 - Saving artifacts with experiment ✓
 - Importing/sharing external experiments ✓
- No-functional US :
 - Documentation ready ✓
 - Tests ✓
 - Fully automated CI ✓

- Client backend
 - Data storage ✓
 - Data retrieval ✓
 - Integration with API backend ✓
- API backend
 - Data sending ✓
 - Data storage ✓
 - Production deployment ✓
- Docker
 - Development image ✓
 - Production image ✓



Optional goals

- S3 backend 
- Publication in Journal of Open Source Software (JOSS) 
- Under review
- Add to Qiskit Ecosystem 



Explore *community pr*
from Qiskit and the
Qiskit community

Ecosystem Resources

The Ecosystem consists of projects, tools, utilities, libraries and tutorials from a broad community of developers and researchers. The goal of the Ecosystem is to celebrate, support and accelerate development of quantum technologies using Qiskit.

[Join the ecosystem](#)

Main (0) Extensions (0) **Community (3)**

Software packages supported by the Qiskit community, not maintained by IBM Quantum

Category

- ☐ algorithms
- ☐ chemistry
- ☐ circuit
- ☐ circuit simulator
- ☐ convert
- ☐ converter
- ☐ error mitigation
- ☐ finance
- ☐ game
- ☐ hardware
- ☐ julia
- ☐ machine learning
- ☐ notebook

purple

purplecaffeine

Apache License 2.0

Project is aimed to create simple general interface to track quantum experiments, store and search them in an easy way.

[Go to repo](#)

[Website](#)



PurpleCaffeine: tracking of quantum programs and experiments

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³ Sardar Vallabhbhai National Institute of Technology, Surat, India ⁴ Netcracker, Mexico
^{*} Corresponding author

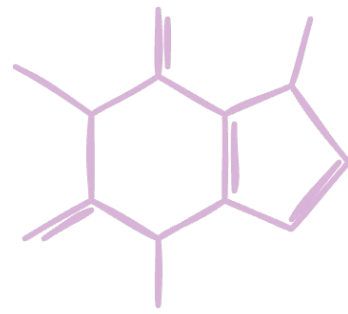
Summary

PurpleCaffeine aims to provide researchers in the field of quantum computing with a user-friendly and efficient solution for tracking their experimentation data. With the rapid advancement of quantum computing research, the need for accessible and organized data management tools has become increasingly important. By offering a simplified interface, the package allows researchers to easily record and organize quantum experimental data, ensuring its accessibility and facilitating future analysis.

By utilizing this package, researchers can effortlessly capture and store crucial information related to their quantum experiments. The user-friendly interface simplifies the process of inputting and organizing data, including experimental parameters, measurement results, quantum circuits, OpenQASM (Cross et al., 2017) files, device information and other relevant metadata. The package's emphasis on simplicity reduces the learning curve and frees researchers from complex data management tasks, enabling them to focus on their core work.

Statement of need

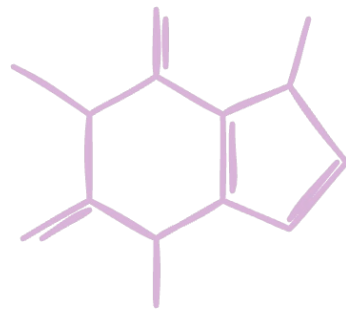
Researchers in the field of quantum computing predominantly rely on notebook services, such as Jupyter (Kluyver et al., 2016), to work within an interactive coding environment. While this approach offers numerous benefits, including code experimentation and real-time analysis, it presents a significant challenge when it comes to tracking experimental data. One of the main drawbacks is the constant overwriting of data, making it exceedingly difficult to trace the specific parameters, circuits, and other details utilized in previous iterations.

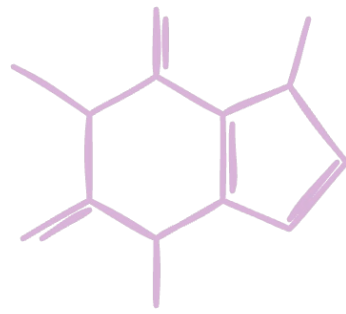


Demo

Links

- <https://github.com/IceKhan13/purplecaffeine>





Thank you!