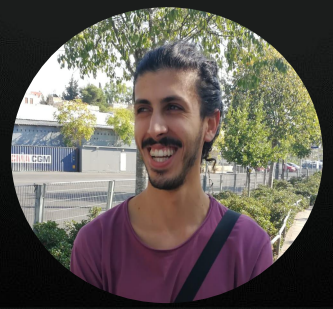
CLASSIQ

QWORLD

End-to-End Quantum Software Development with CLASSIQ

Quantum Software Development Journey: From Theory to Application with Classiq - Part 1

Personal Introduction



Nadav Ben-Ami

Technical Quantum Community Intern

B.Sc in Physics (Tel-Aviv Uni.)
During gap year before QST Master's
R&D experience in industry & academia

Program Overview

Quantum Software Development Journey: From Theory to Application with Classiq

- **Week 1: Introduction to the Classiq Platform & High-Level Functional Design**
- Week 2: Git & Software Development Skills
- Week 3: VQE and Introduction to Quantum Machine Learning
- Week 4: QNN and Advanced Applications

Session Overview

Introduction to the Classiq Platform & High-Level Functional Design

Quantum Computing - 30 min

- Introductions
- Presentation of Classiq

Classiq Hands-On - 60 min

- Hands-On Workshop - Basics, State Preparations, Arithmetics
- Q&A and Summary

Classiq is a quantum software tool that enables you to

Design

Optimize

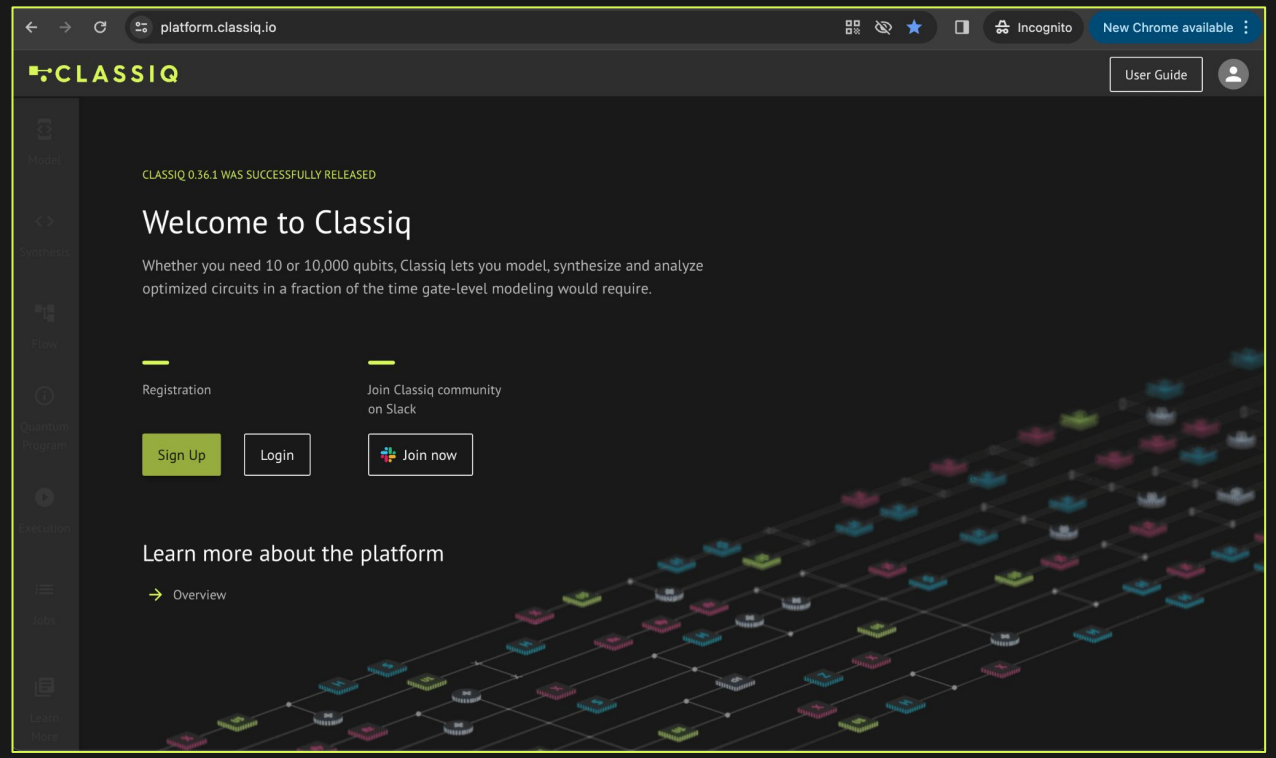
Analyze

Execute

quantum algorithms

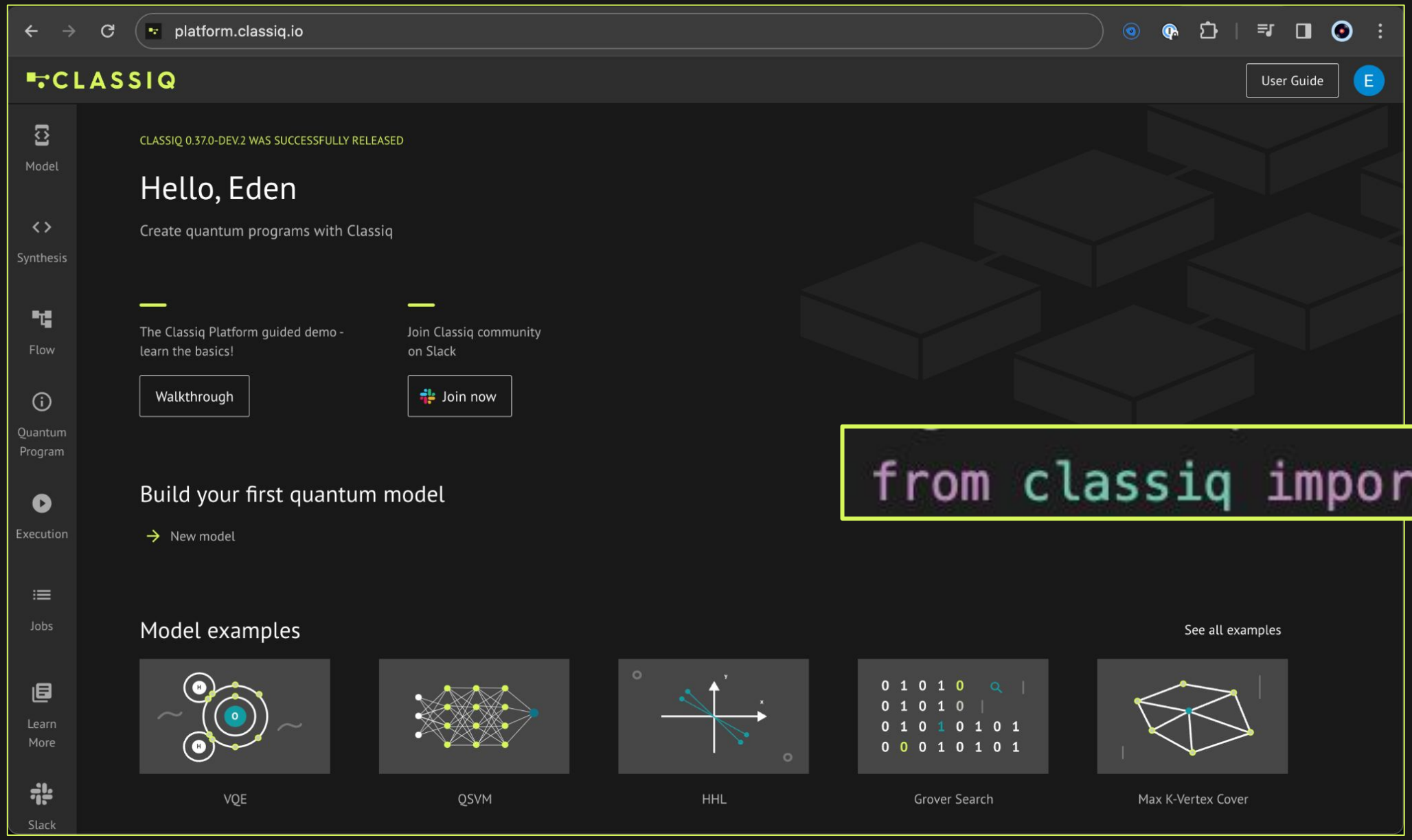
Getting Started in 1 Minute !

Go to *platform.classiq.io* and sign up



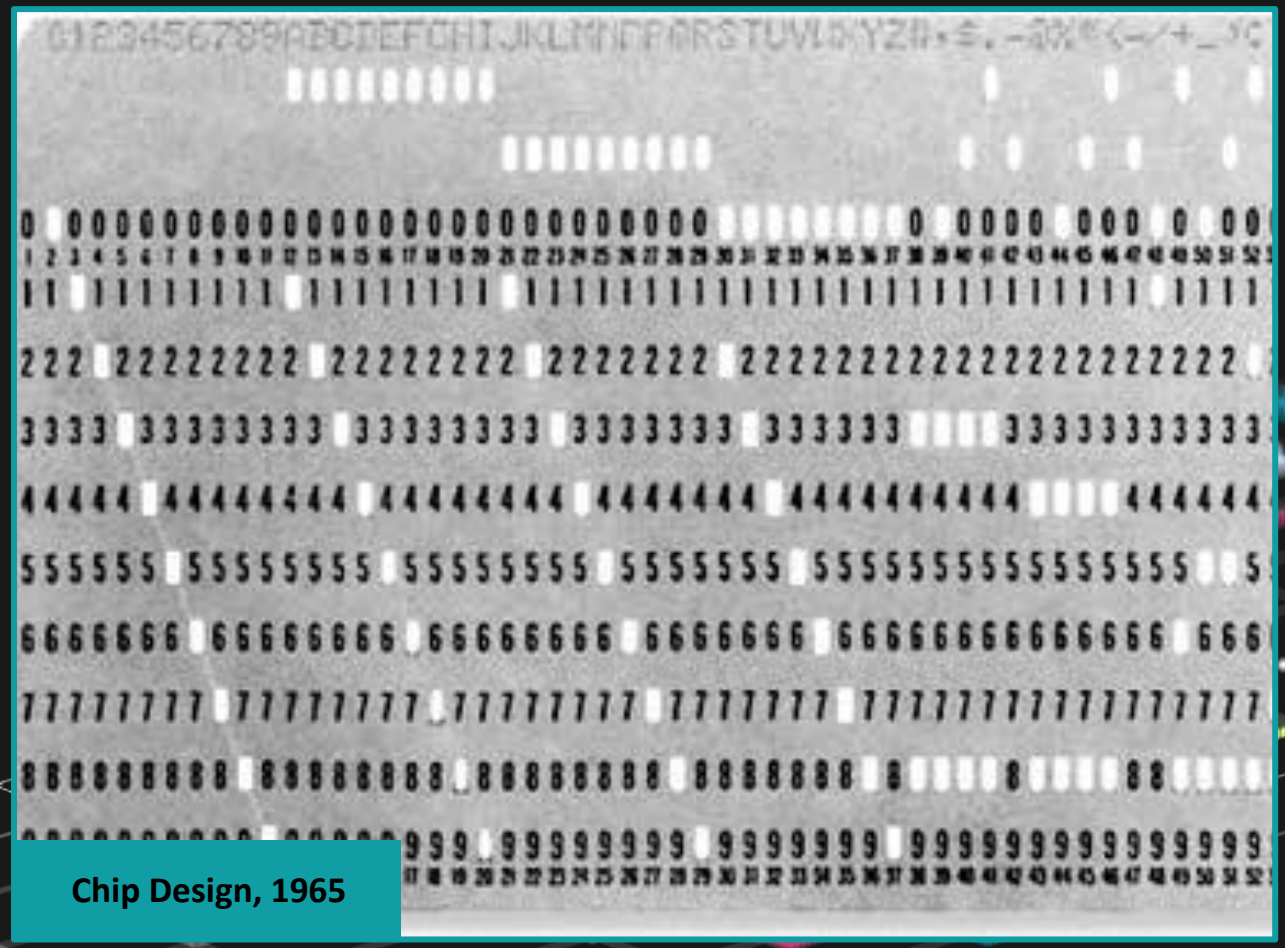
Install the Classiq Python SDK package

```
pip install -U classiq
```


platform.classiq.io
CLASSIQ
User Guide
E
Model
Synthesis
Flow
Quantum Program
Execution
Jobs
Learn More
Slack
CLASSIQ 0.37.0-DEV.2 WAS SUCCESSFULLY RELEASED
Hello, Eden
Create quantum programs with Classiq
The Classiq Platform guided demo - learn the basics!
Walkthrough
Join Classiq community on Slack
Join now
Build your first quantum model
New model
Model examples
See all examples
VQE
QSVM
HHL
Grover Search
Max K-Vertex Cover
from classiq import *


...Years ago 60

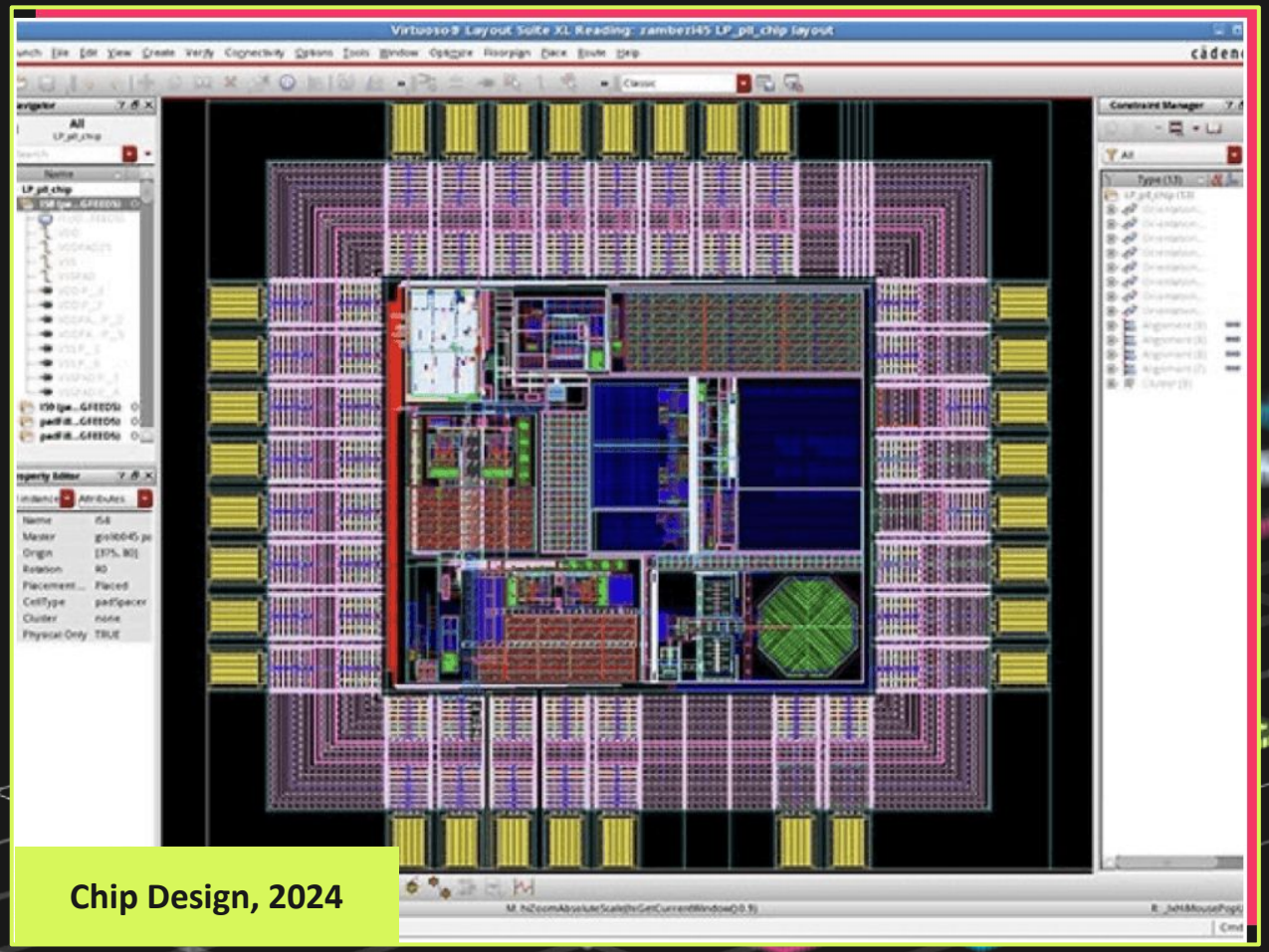
Electronic Design Challenge



Chip Design, 1965

CLASSIQ

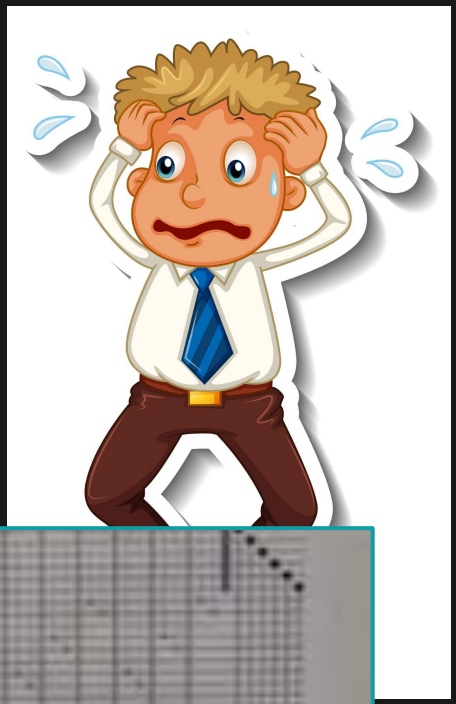
Electronic Design Automation



Chip Design, 2024

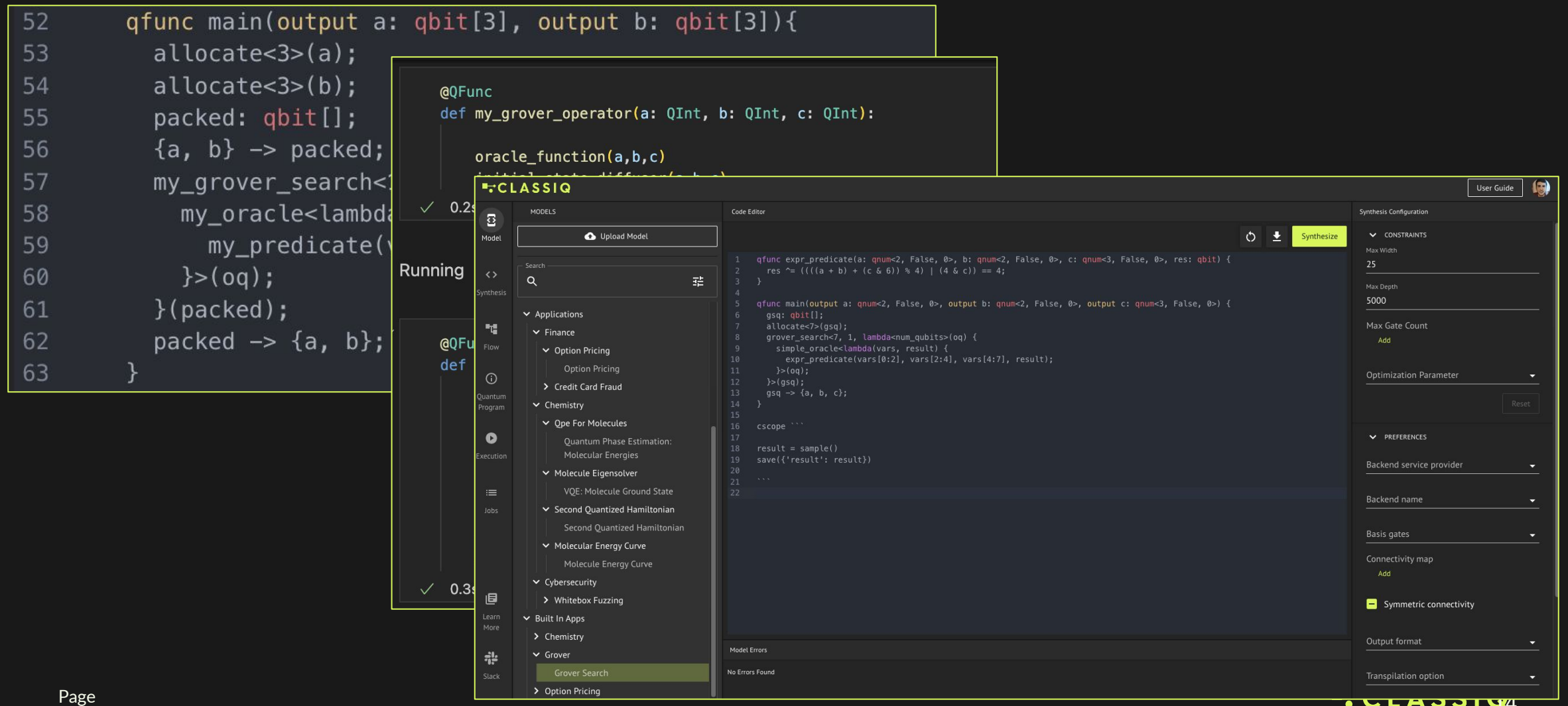
CLASSIQ

Design & Implementation of Novel Quantum Algorithms Before Classiq…

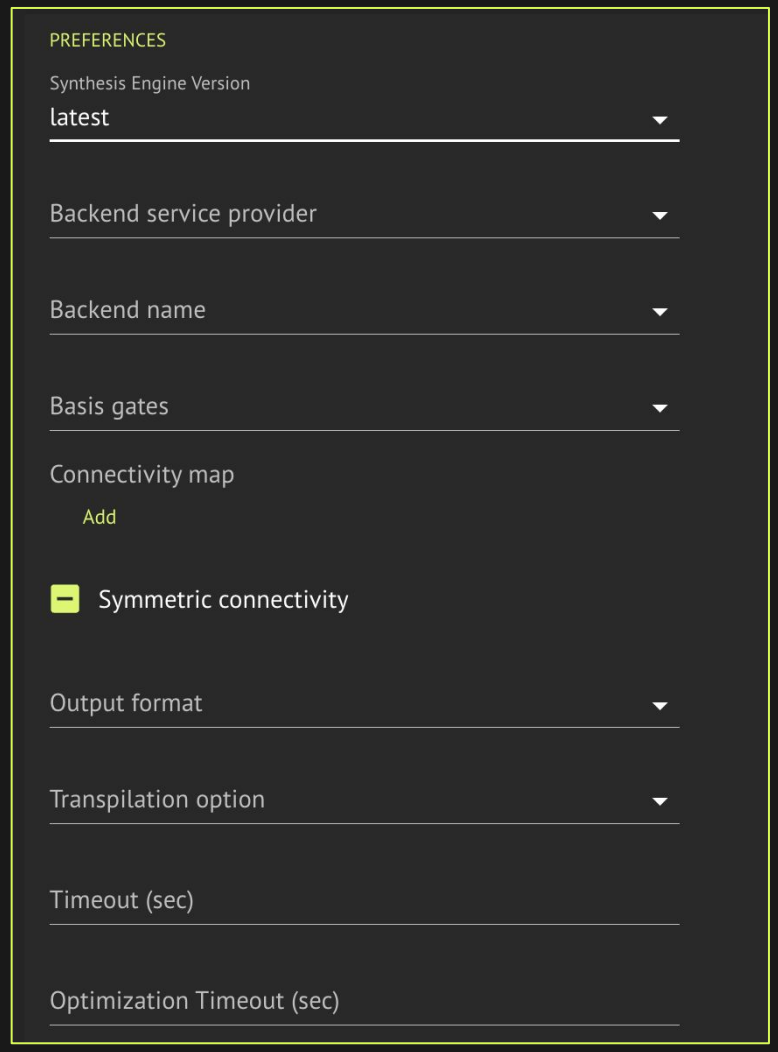


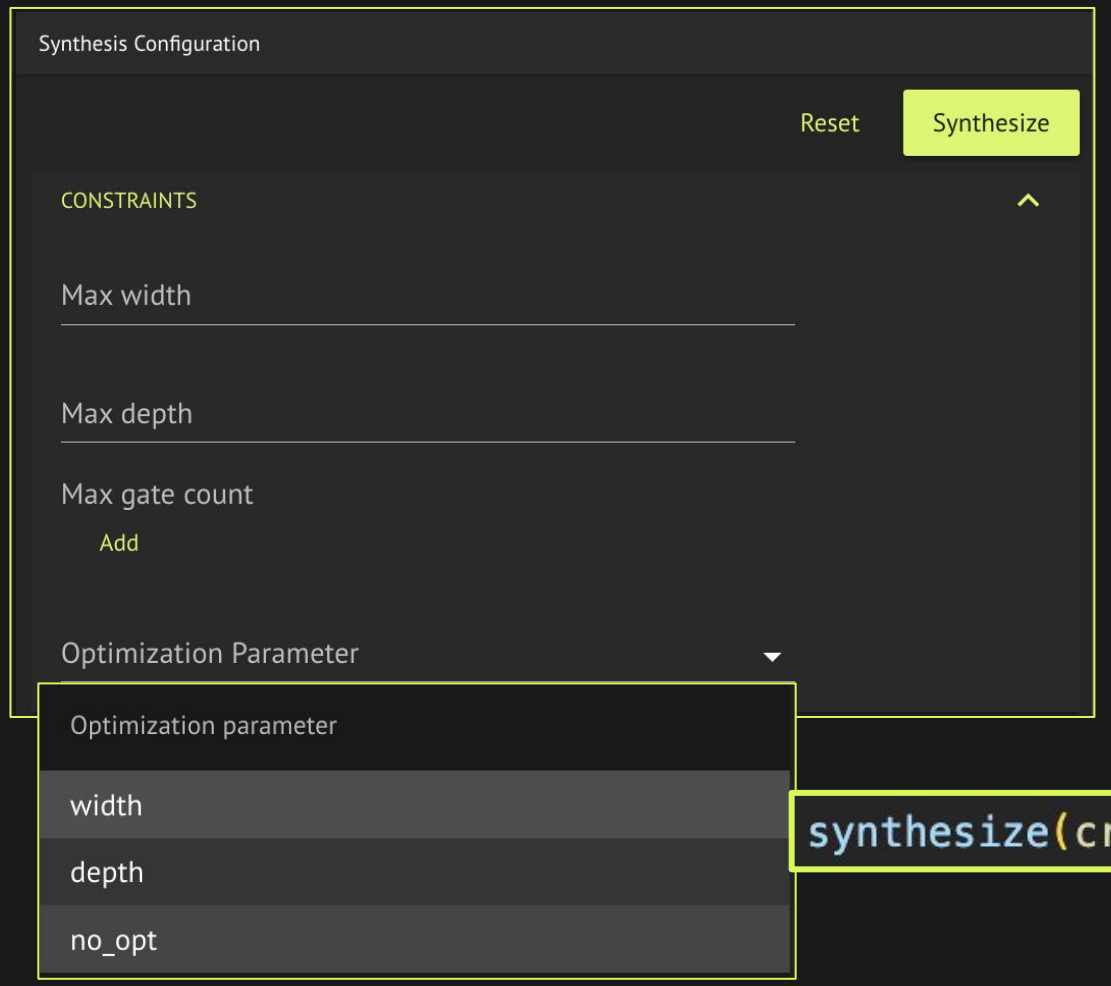
Design of Novel Quantum Algorithms with Classiq

Design of Novel Quantum Algorithms with Classiq



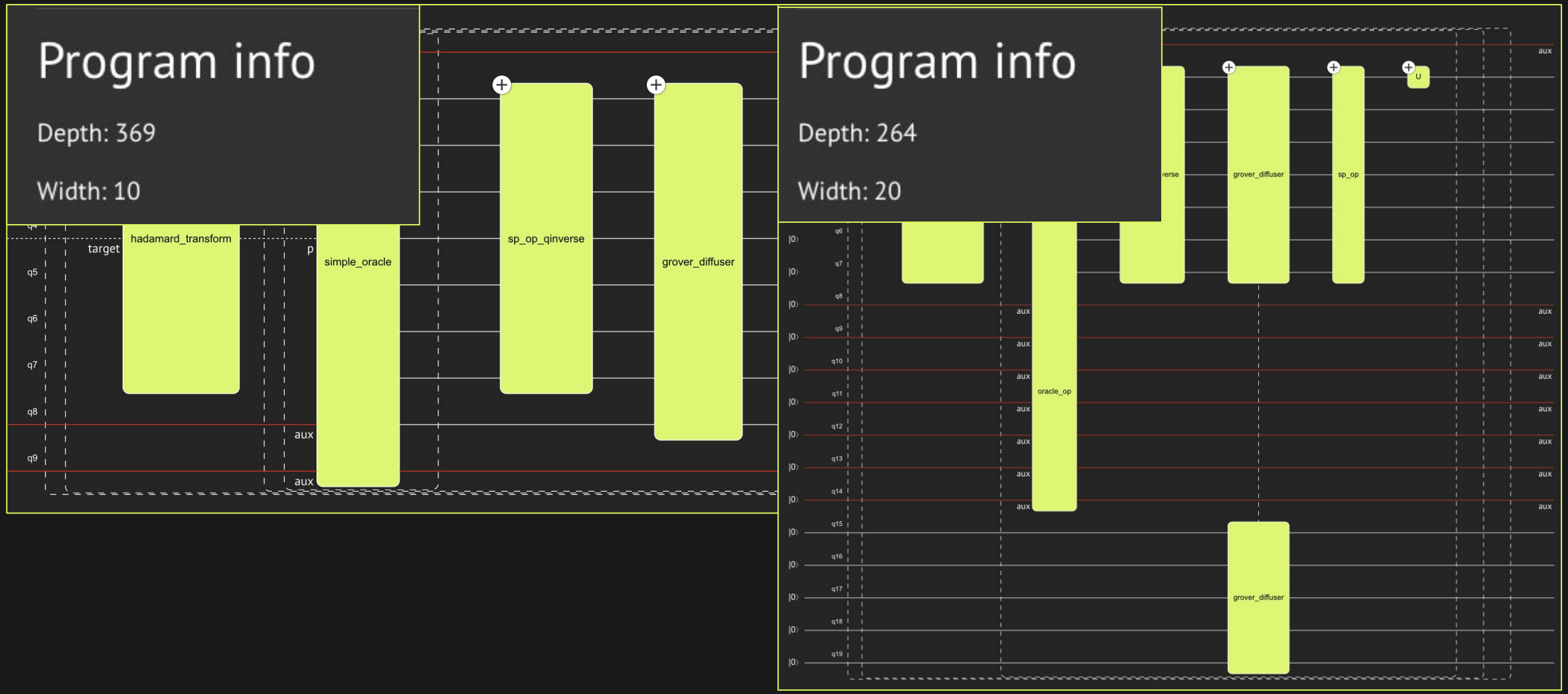
Optimization of Novel Quantum Algorithms with Classiq



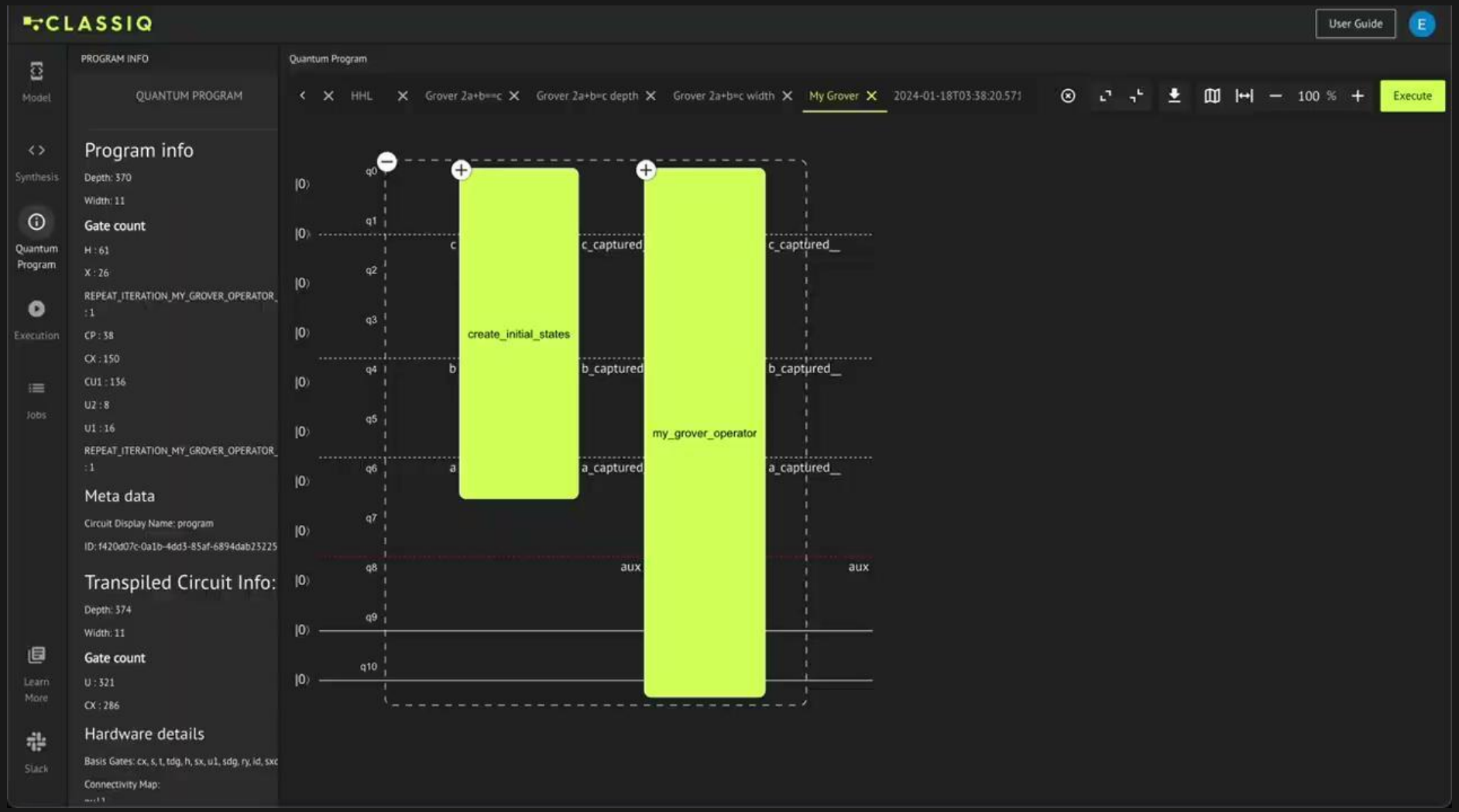



```
synthesize(create_model(main))
```

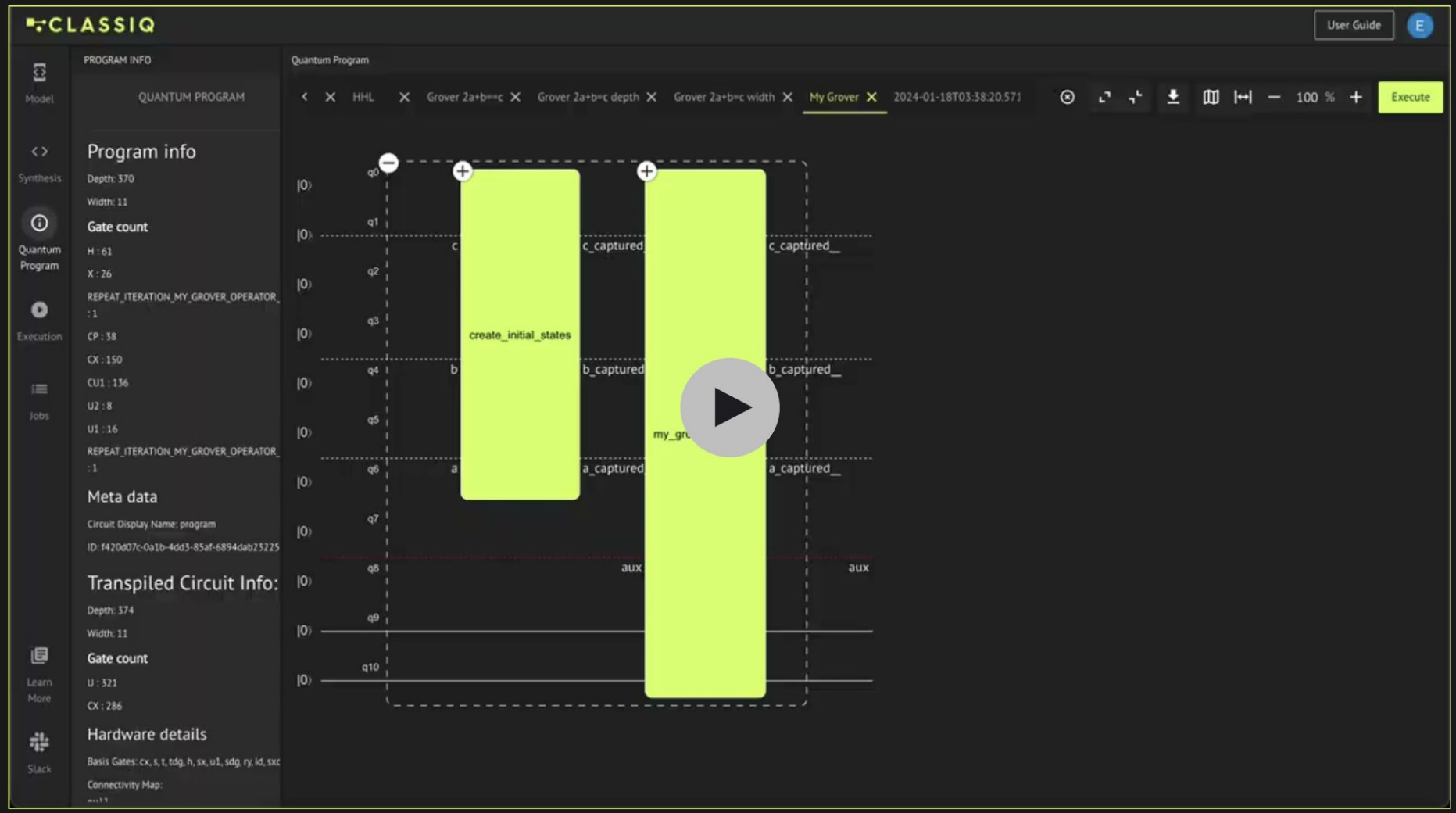
Optimization of Novel Quantum Algorithms with Classiq



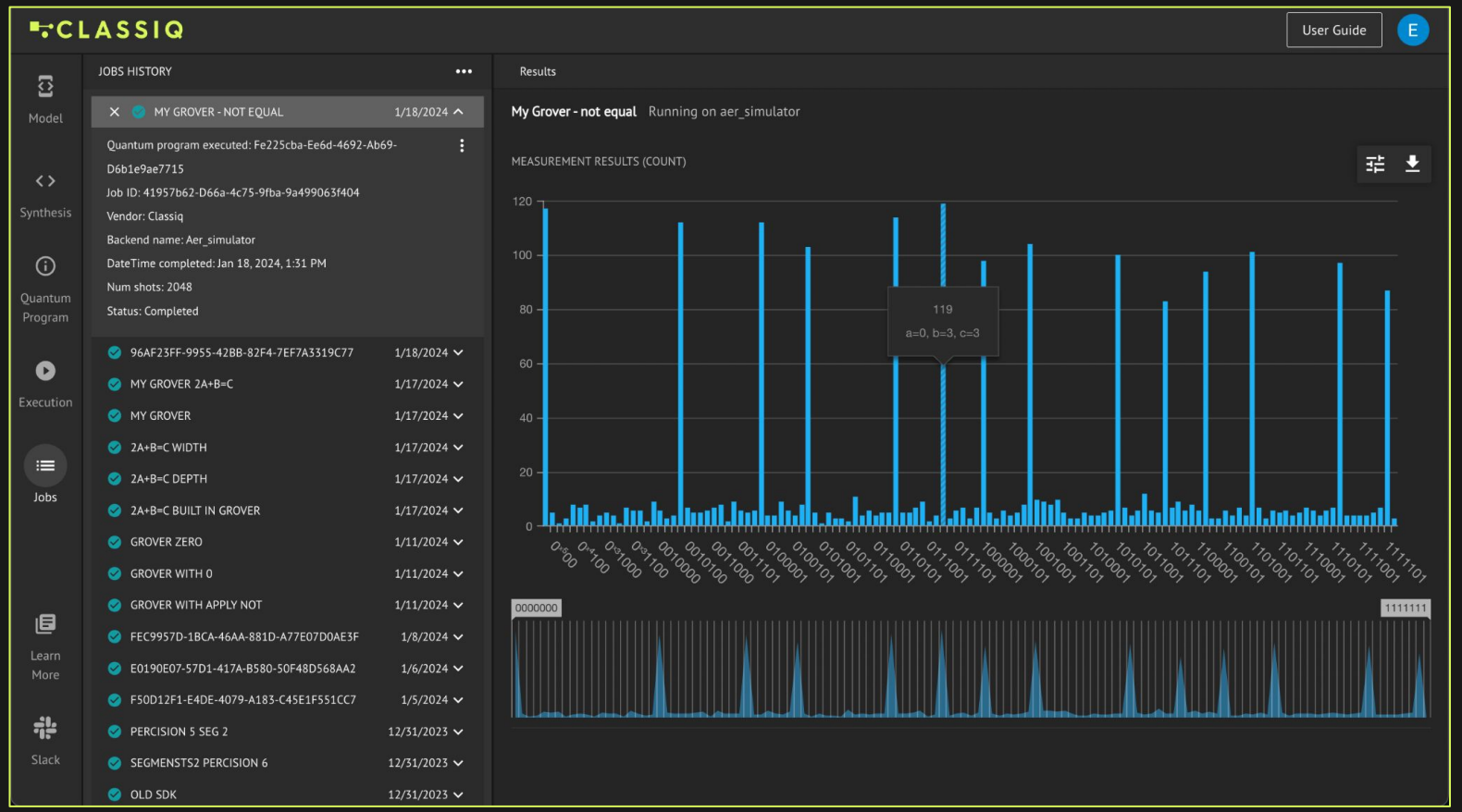
Analysis of Novel Quantum Algorithms with Classiq



Analysis of Novel Quantum Algorithms with Classiq



Execution of Novel Quantum Algorithms with Classiq




```
execute(quantum_program).result()
```

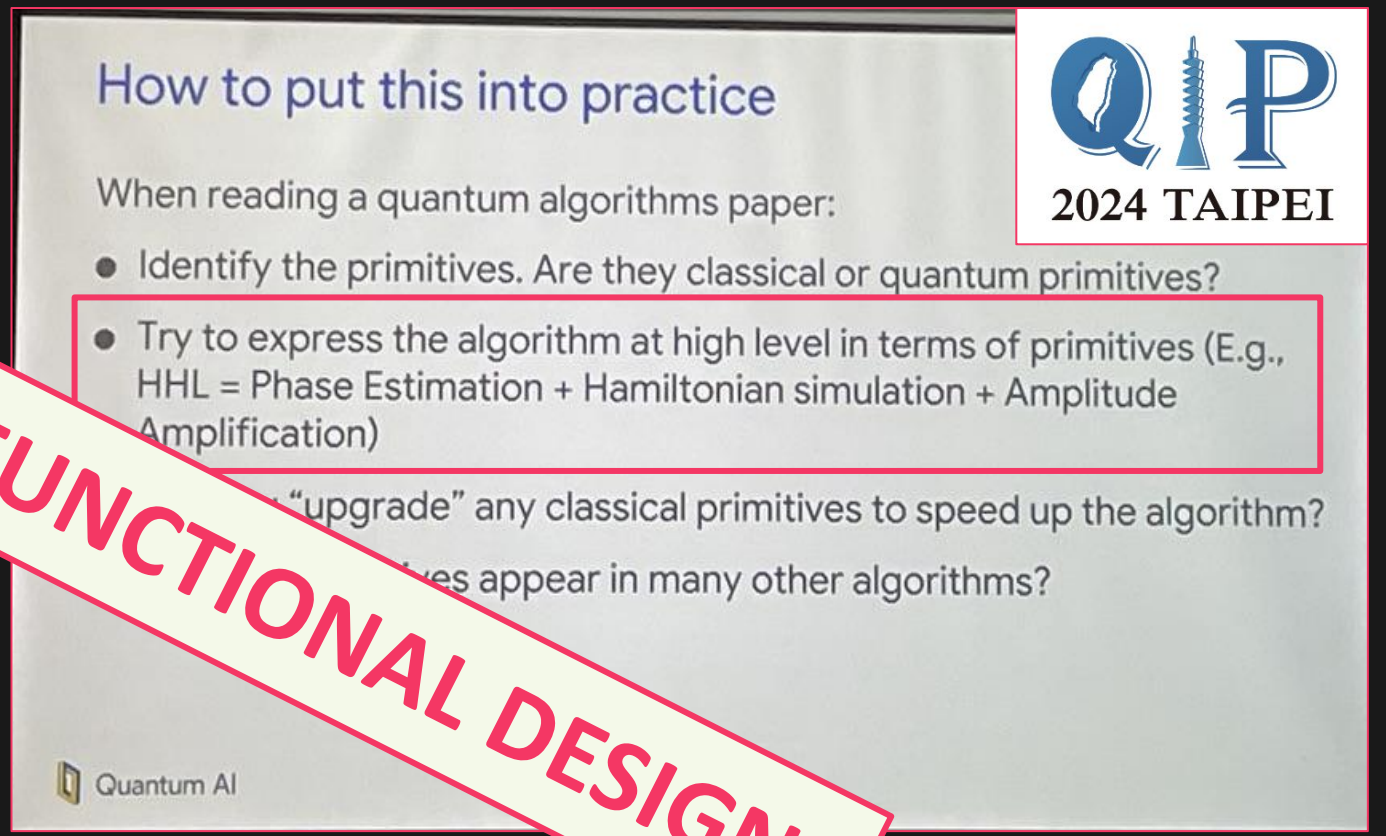
Agenda

- What, Why and How Classiq ?
- Why functional building blocks?
- Hands-on Classiq's Python SDK workshop

Agenda

- What, Why and How Classiq ?
- **Why functional building blocks?**
- Hands-on Classiq's Python SDK workshop

Why Functional Building Blocks?



HIGH LEVEL FUNCTIONAL DESIGN

2024 TAIPEI

" Don't count the number of quantum algorithms you know, focus on the algorithms' primitives you learn"

R. Kothari @QIP24

CLASSIQ

Why Functional Building Blocks?

Session Overview

- What, Why and How Classiq ?
- Why functional building blocks?
- **Hands-on Classiq's Python SDK workshop**
  - Join Classiq slack channel here
  - Go to the channel #qcourse-self-study-module-2024)
  - Download the files and engage during the hands-on part!

CLASSIQ

THANK YOU

CLASSIQ.IO