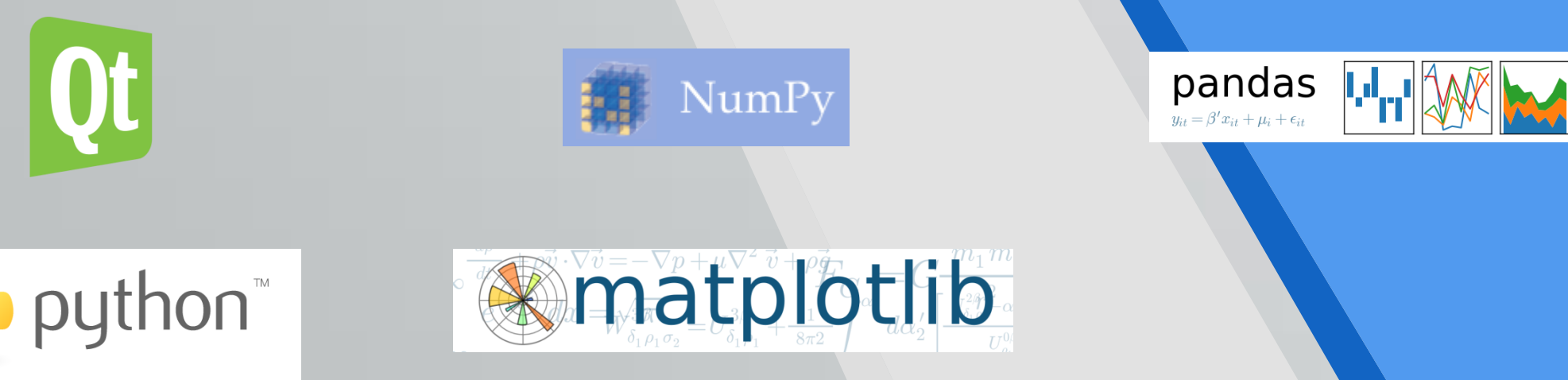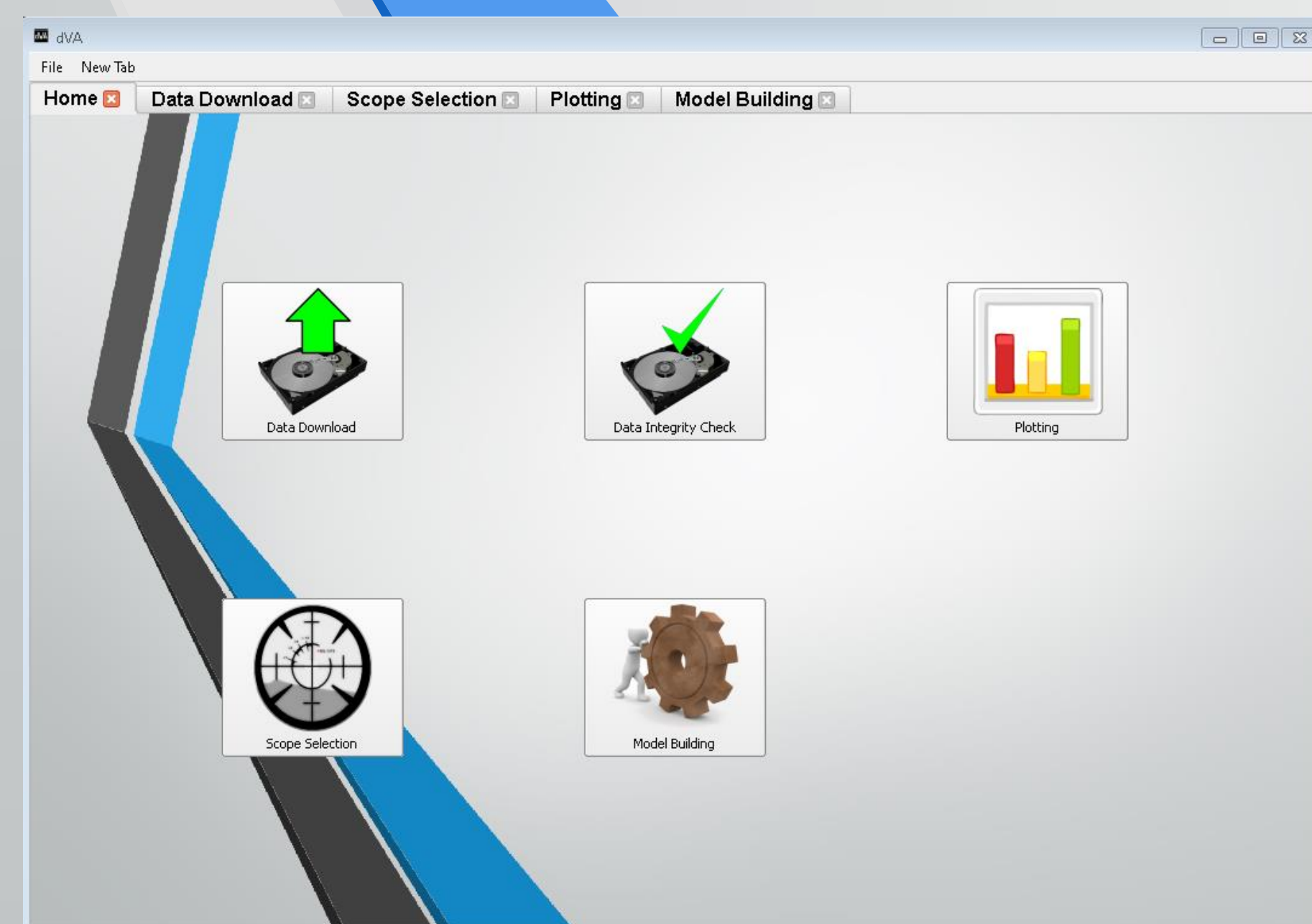# dVA

Data Visualization and Analysis
2015-2016

Background

- Design and manufacturing of modern semiconductor products is very complex
- Increased complexity necessitates more verification and testing
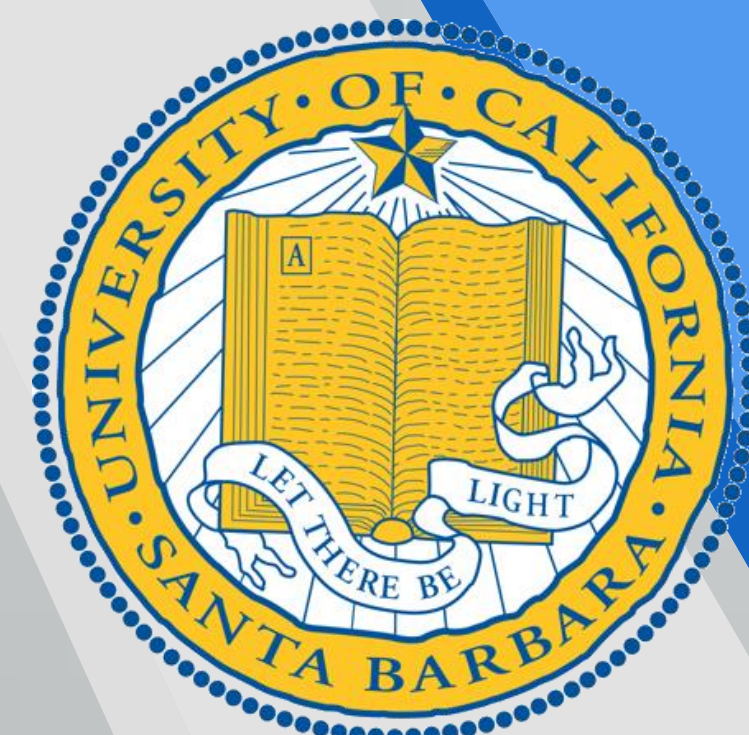- More testing means more infrastructure and economic issues for the company

What is dVA?

dVA is a software tool designed for product engineers in the semiconductor industry.

The goal of dVA is to facilitate the analysis of test data from semiconductor manufacturing.

Team: Sam Dowell, Blake Hall, Christopher Hindman
Graduate Advisors: Jay Shan, Matthew Nero, Sebastian Siatkowski
Faculty Advisors: John Johnson, Li-C Wang

Applications:

Test Time Reduction:

A common pursuit for companies is to reduce costs.

A method to reduce costs in the semiconductor design process is to remove unnecessary tests from the test process.

dVA enables engineers to identify highly similar tests which are likely candidates for redundancy.

Quality Analysis:

Another scenario presented to companies is the issue of product failures and customer returns.

For semiconductor companies, it is often the case that the company wants to identify the cause of the product failure. This allows the company to identify faulty products in the early stages of design to reduce the rate of customer returns.

dVA enables engineers to identify which tests are good indicators for a faulty product by using outlier analysis techniques.

Solving a Similar Problem:

Engineers often work on multiple projects at a time. They also can face similar problems in the future.

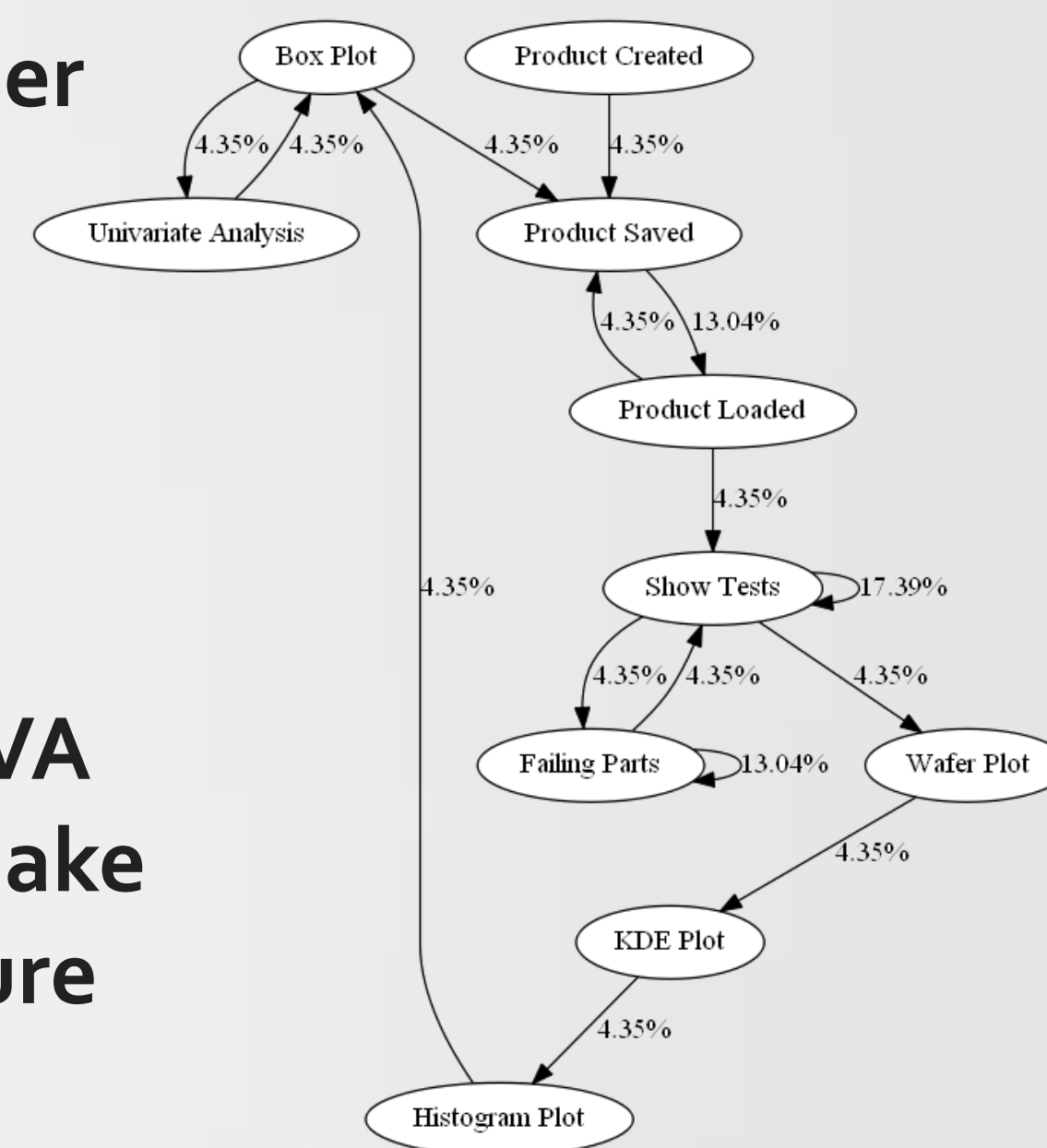dVA provides an infrastructure to log and visualize processes used to solve past problems.

Features:

Process Modeling:

dVA tracks the actions that the user takes during a session.

This enables the user to visualize their process.

This infrastructure also enables dVA to learn from program usage to make the program more efficient in future usage.


Dynamic Data Selection:

dVA provides a flexible methodology for selecting data sets for analysis. This makes the tool generalizable for whatever type of problem the engineer wishes to solve.

Data Analysis:

dVA provides a suite of data analysis techniques which enable engineers to analyze test data for a range of scenarios.

Data Visualization:

dVA provides a suite of visualization techniques which enable engineers to visualize the results from data analysis.
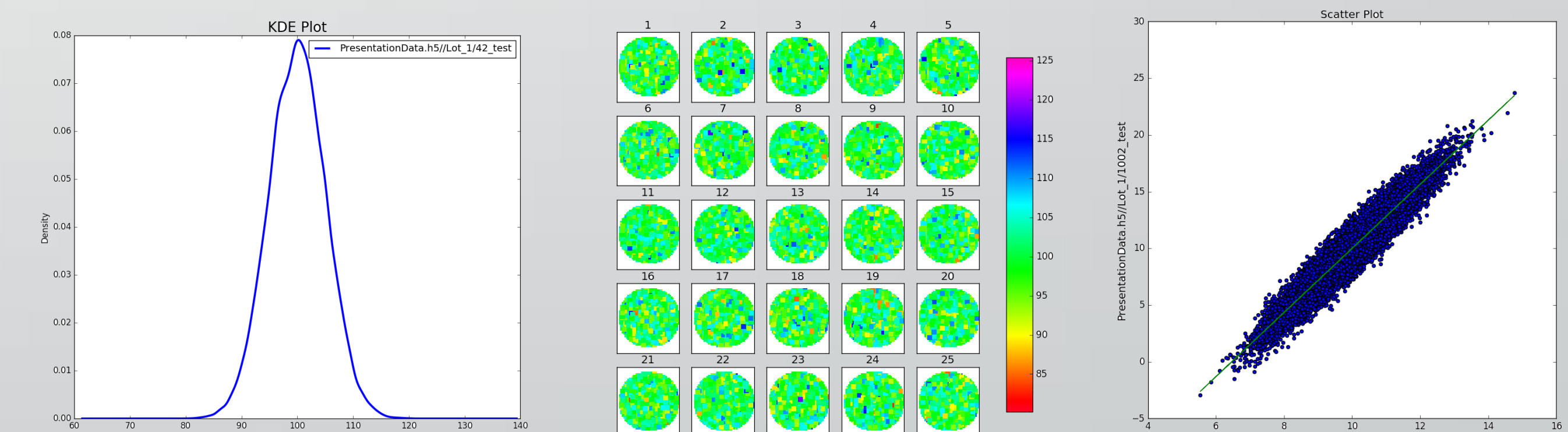
Caching:

In many cases, data analysis will be done on very large sets of data and can be very time consuming.

dVA caches results from data analysis which enables the user to save time when working on the same set of data