RSAConference2020
San Francisco | February 24 – 28 | Moscone Center

HUMAN ELEMENT

SESSION ID: CRYP-T12

A Fast Characterization Method for Semi-invasive Fault Injection Attacks

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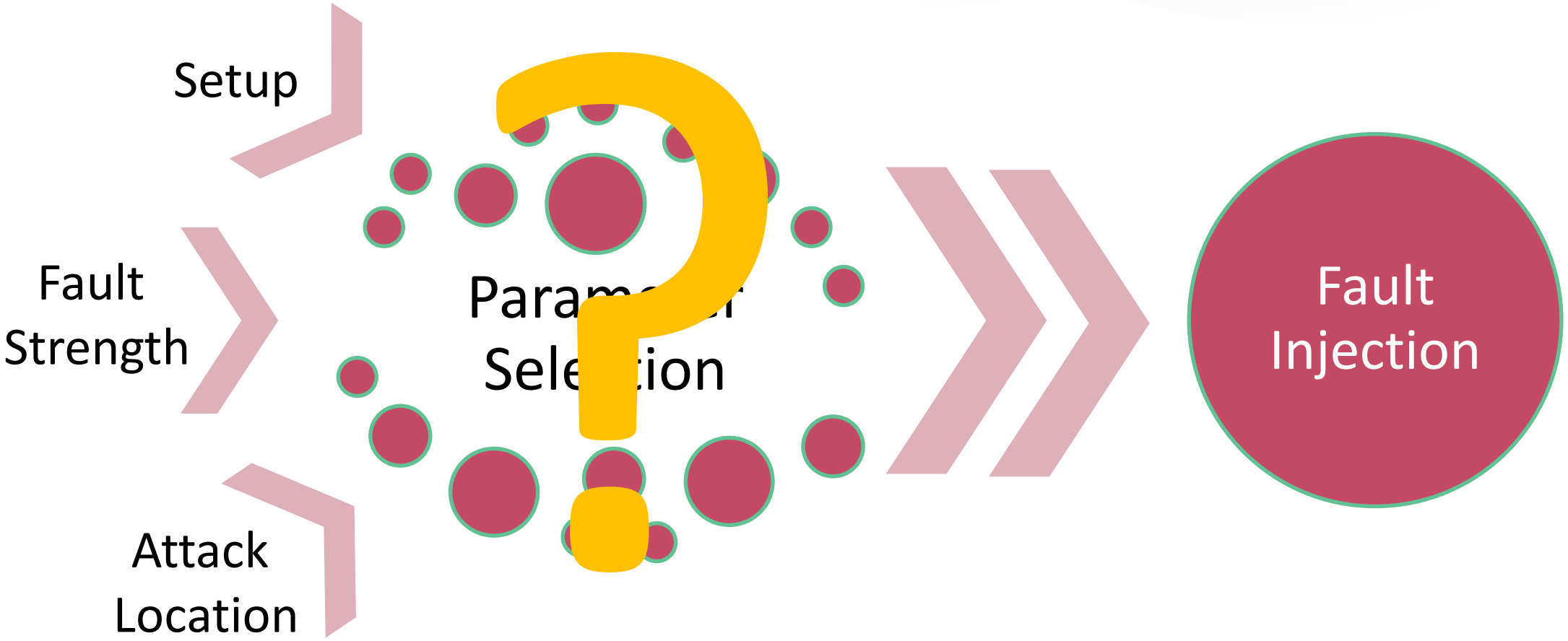
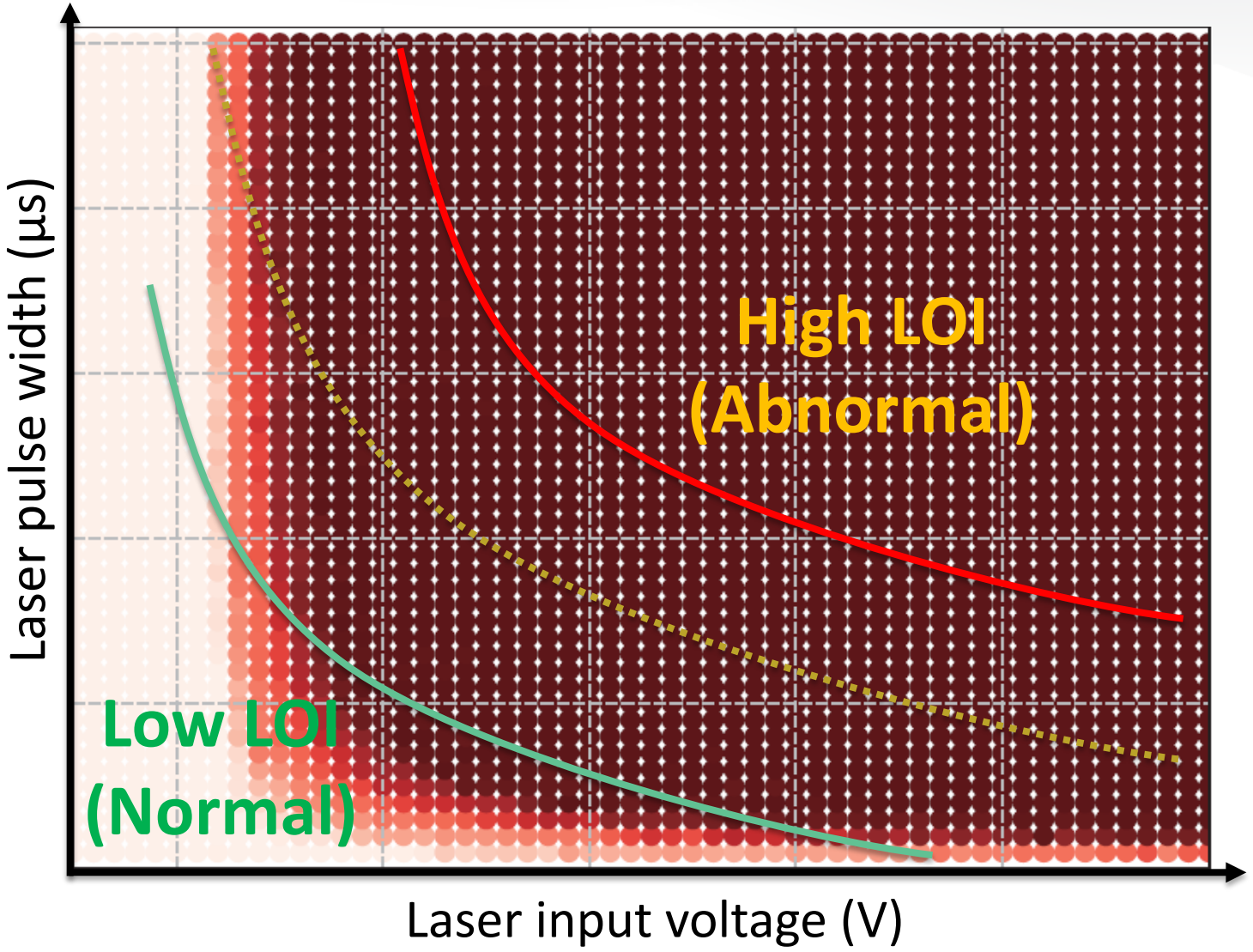
Why Characterization?



How to Characterize?



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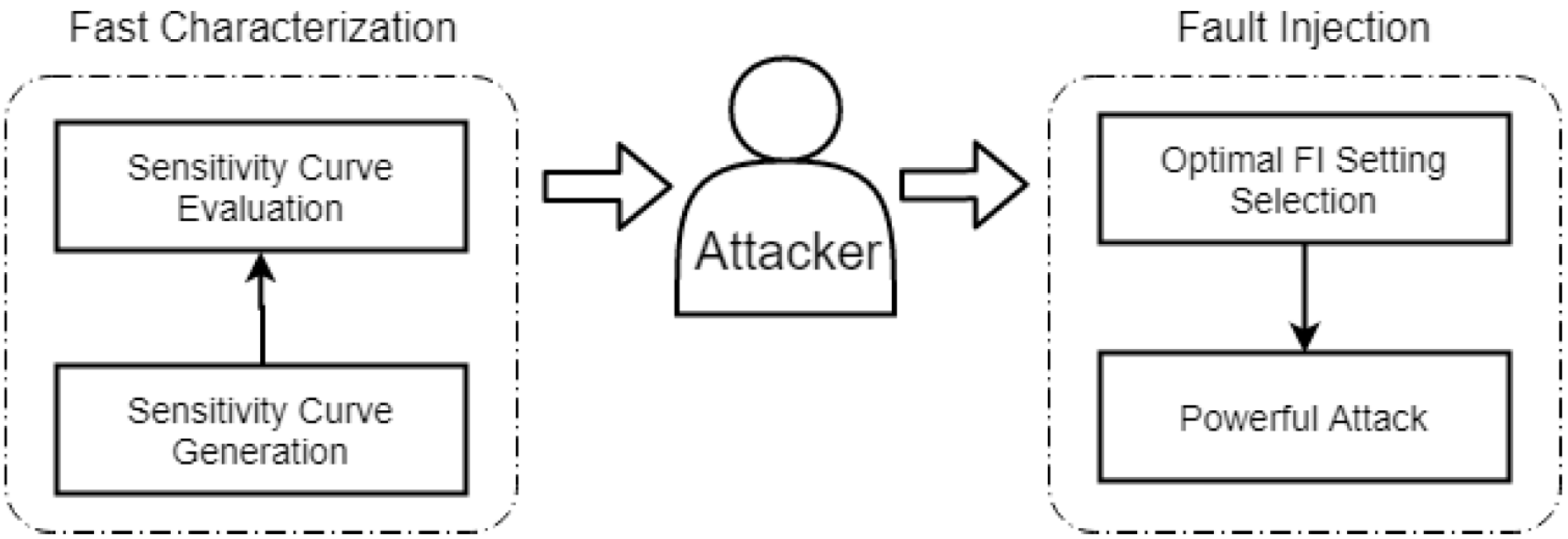
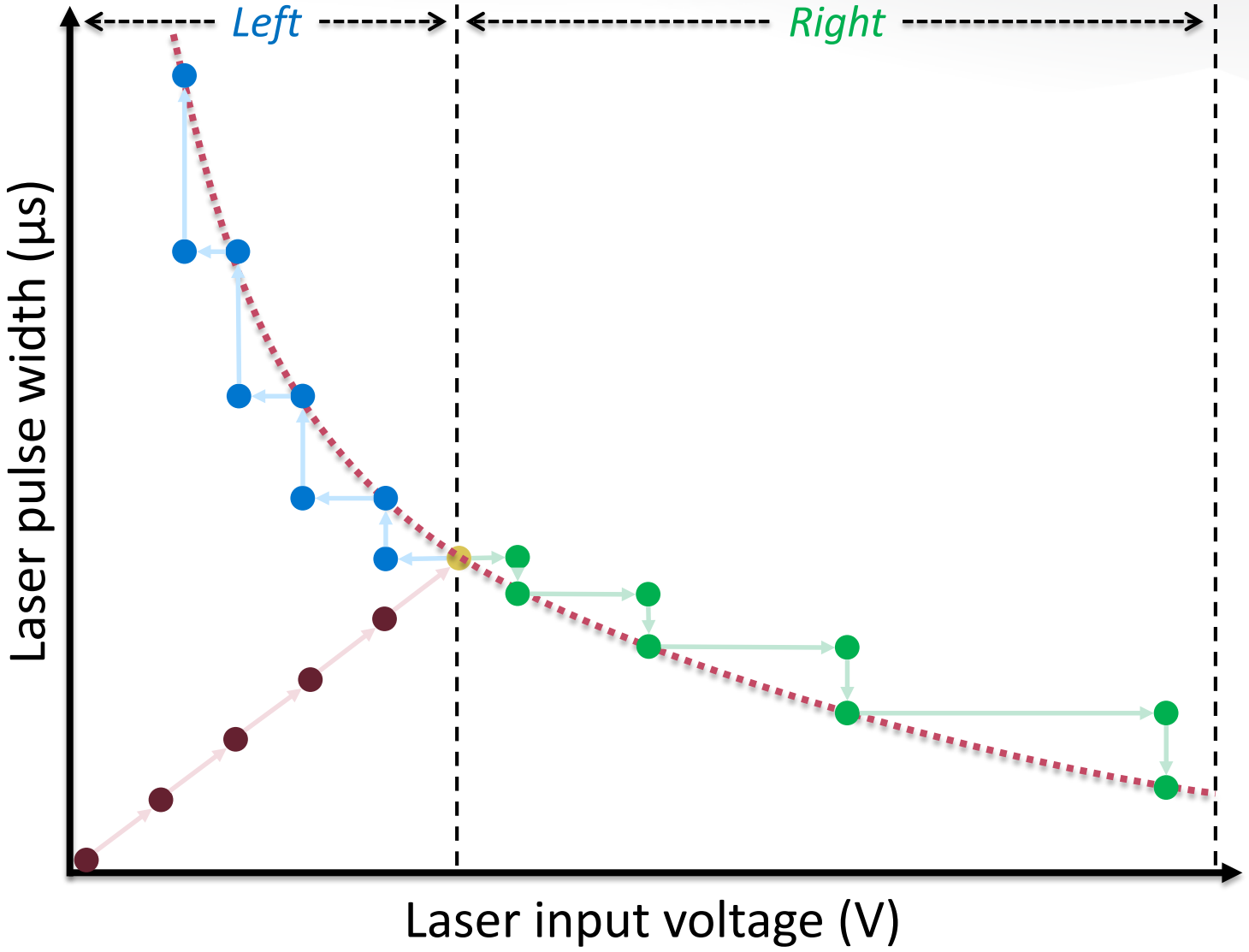
Fast Characterization Methodology

Attack Workflow



Sensitivity Curve Generation



Sensitivity curve

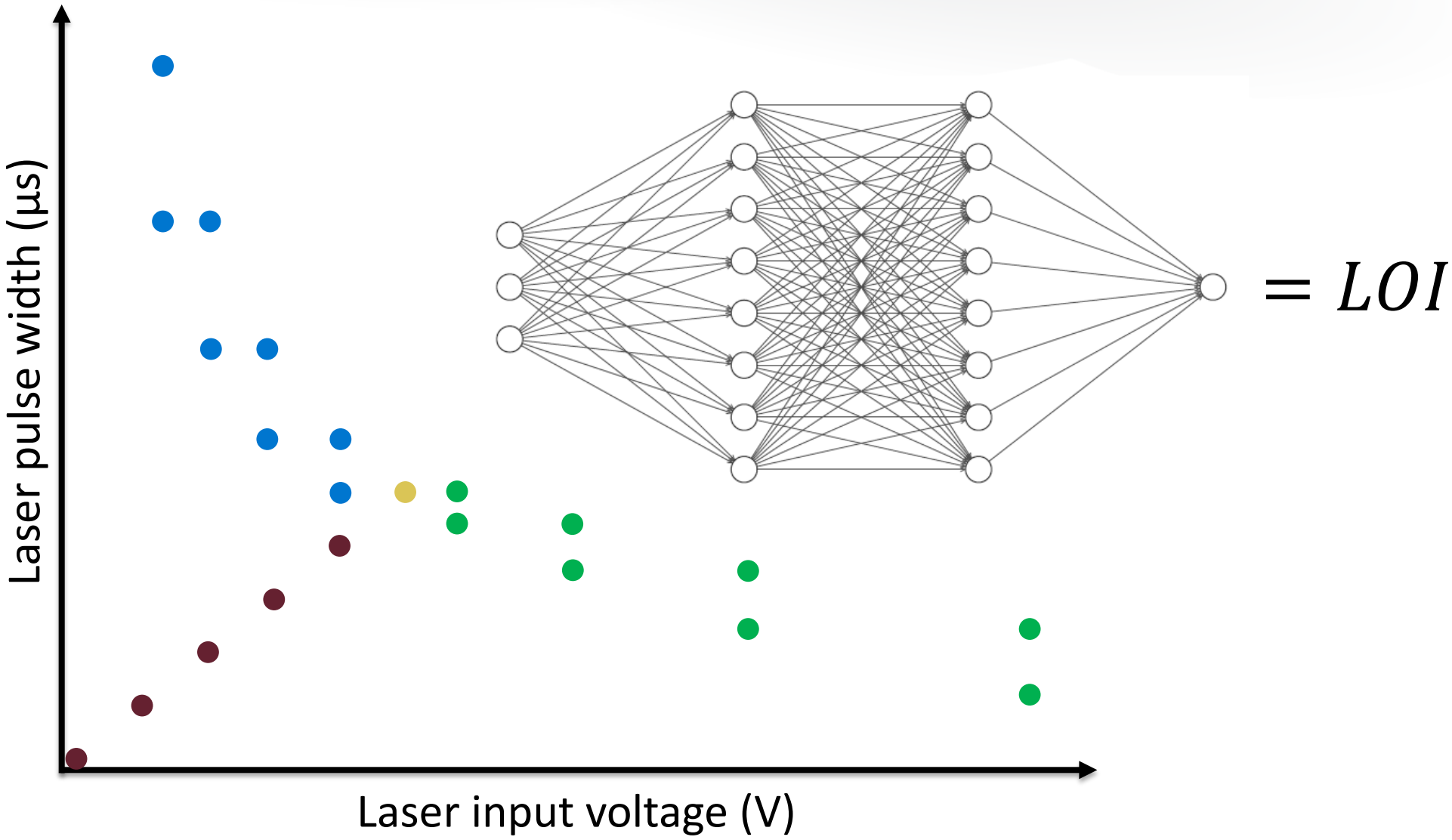
Diagonal search

Golden point

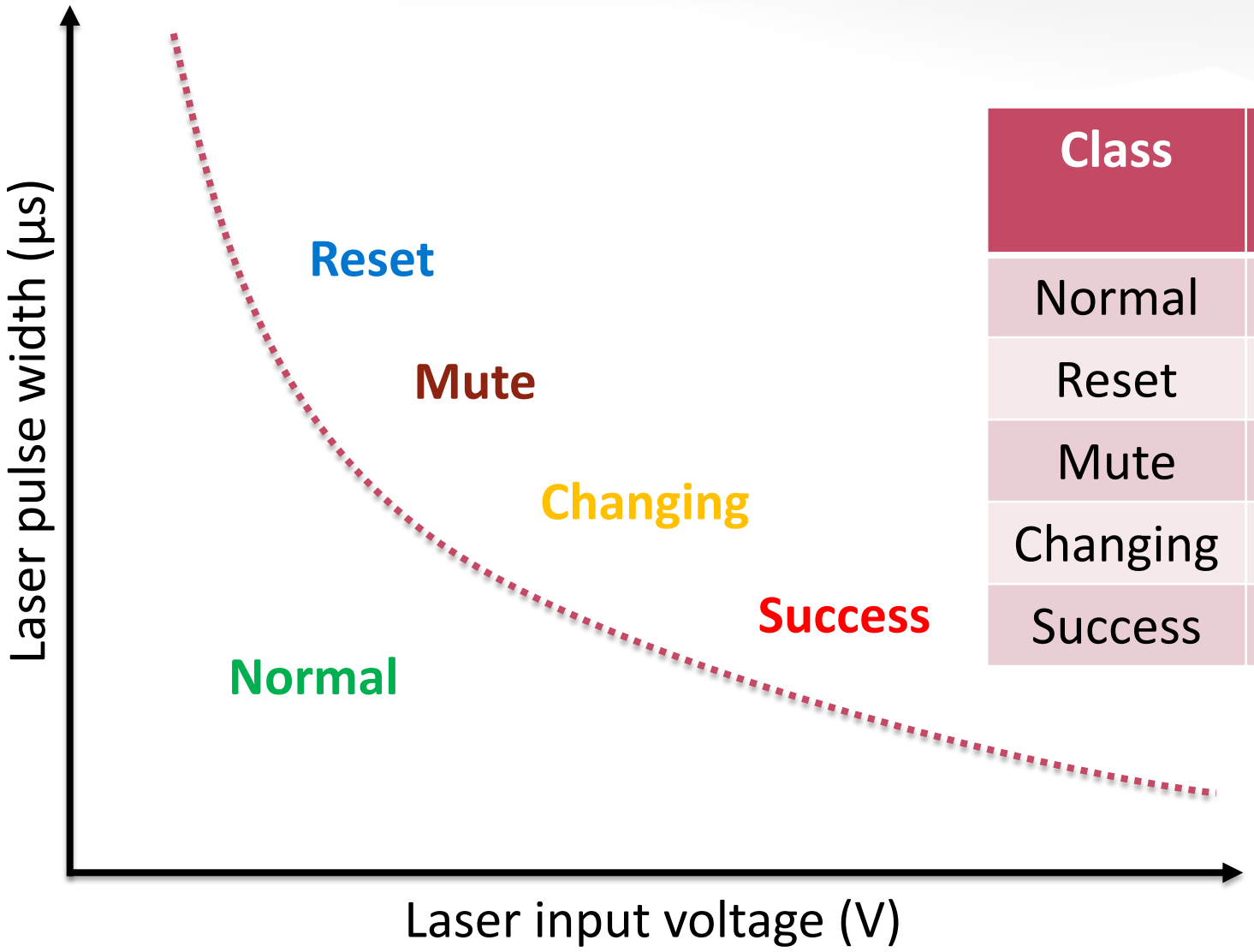
Left search

Right search

Evaluation: Predicting LOIs



Evaluation: Impact Score (IS)



Class	Detected	Manipulated	Score
Normal			0
Reset	+		10
Mute	+	+	20
Changing		+	50
Success		++	100

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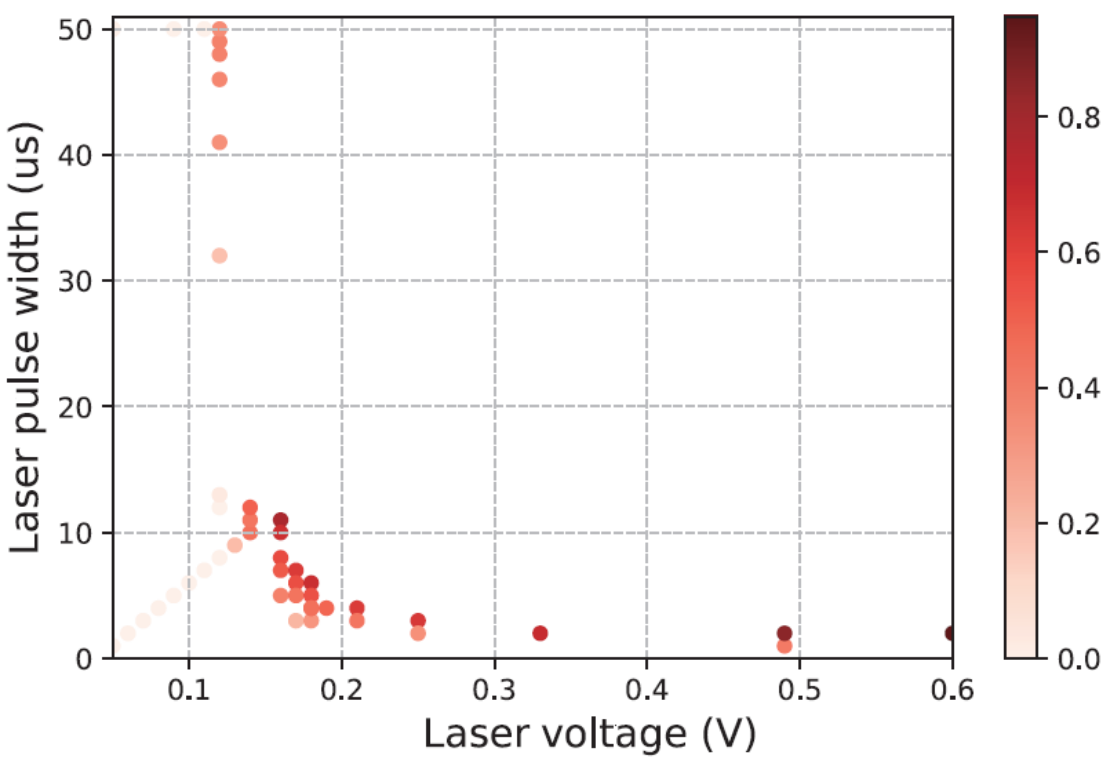
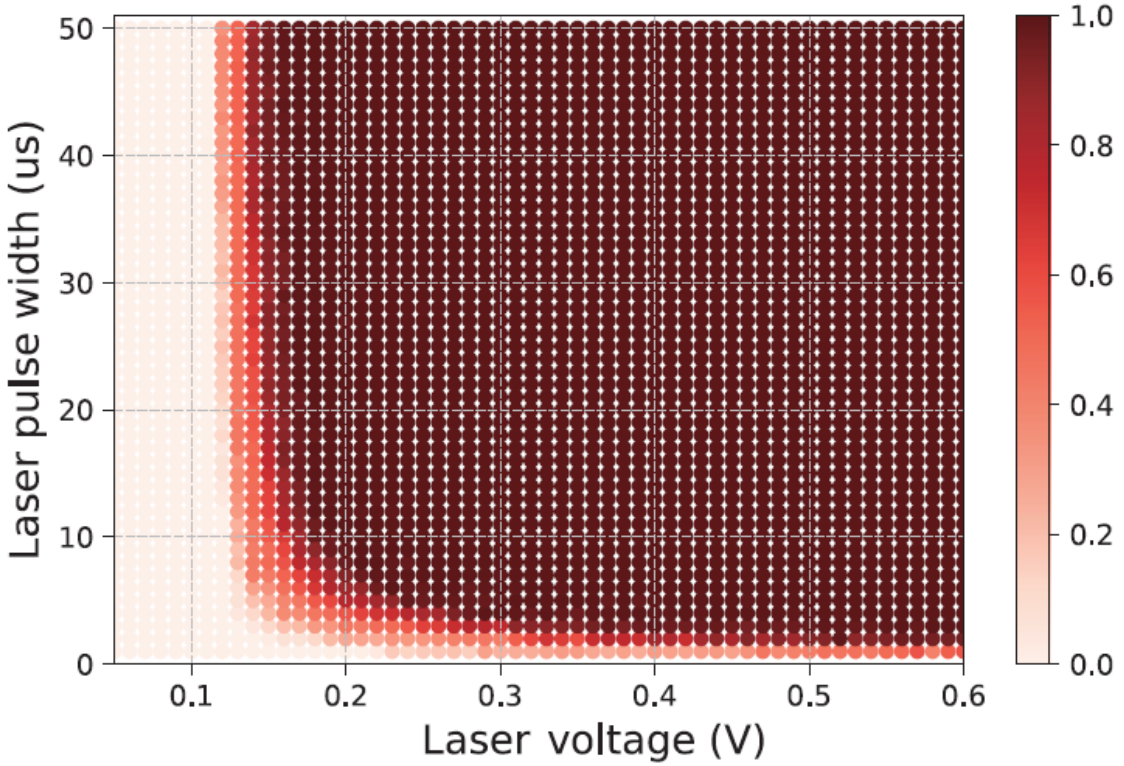
Experimental Results

Sensitivity Curve Generation

Sensitivity Curve

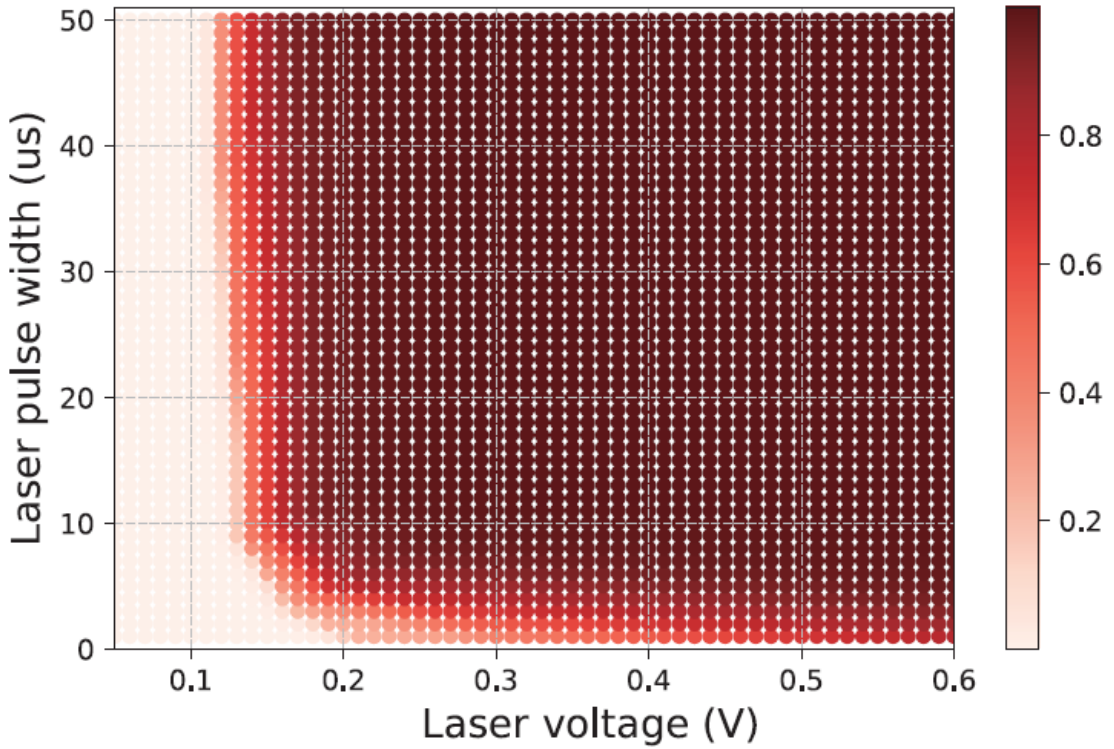


Exhaustive Scan

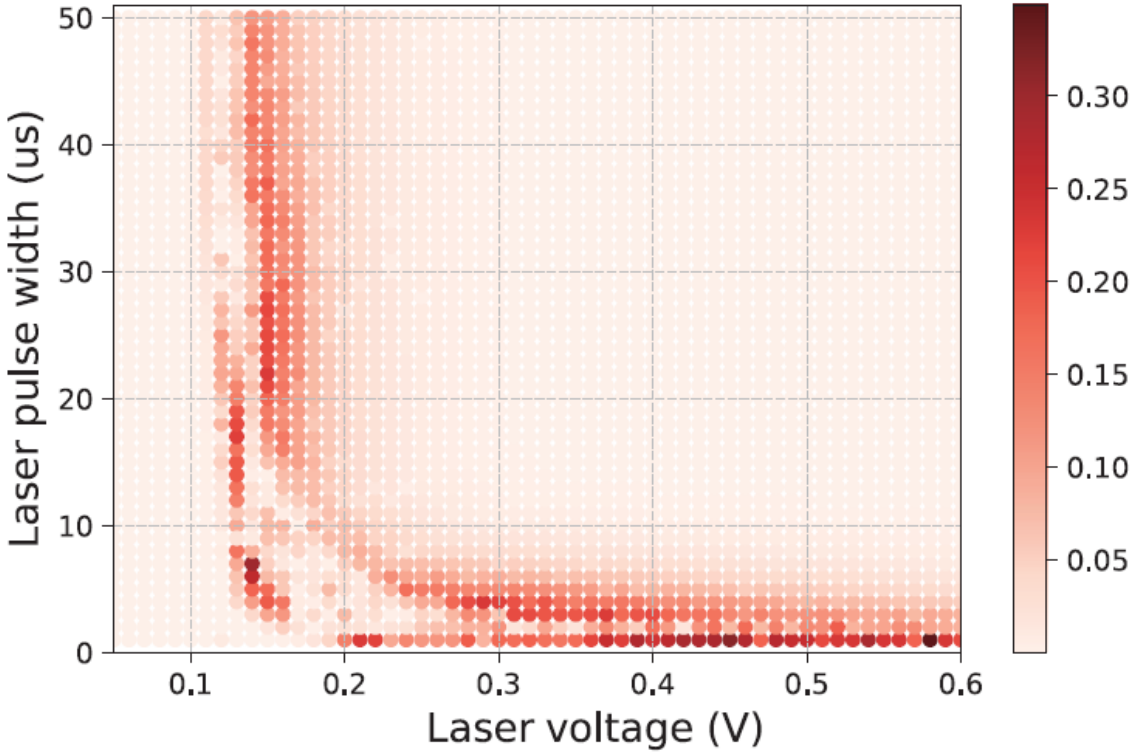


Sensitivity Curve Evaluation: Predicting LOIs

Prediction Result

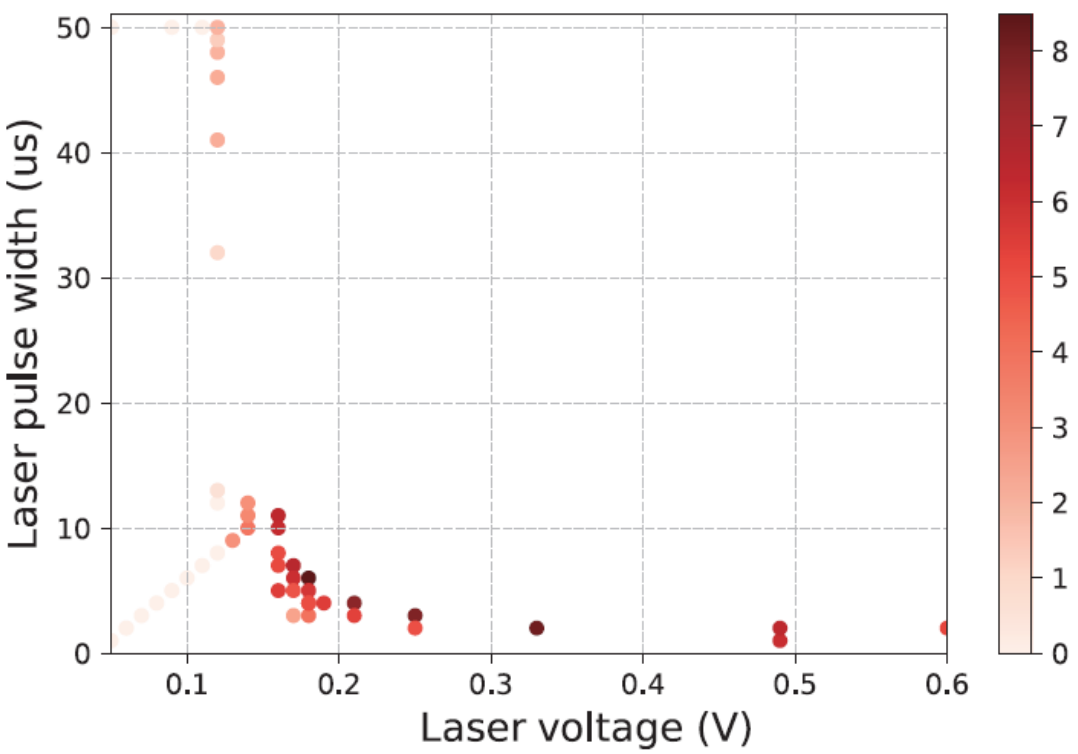


Exhaustive Scan/Prediction Error

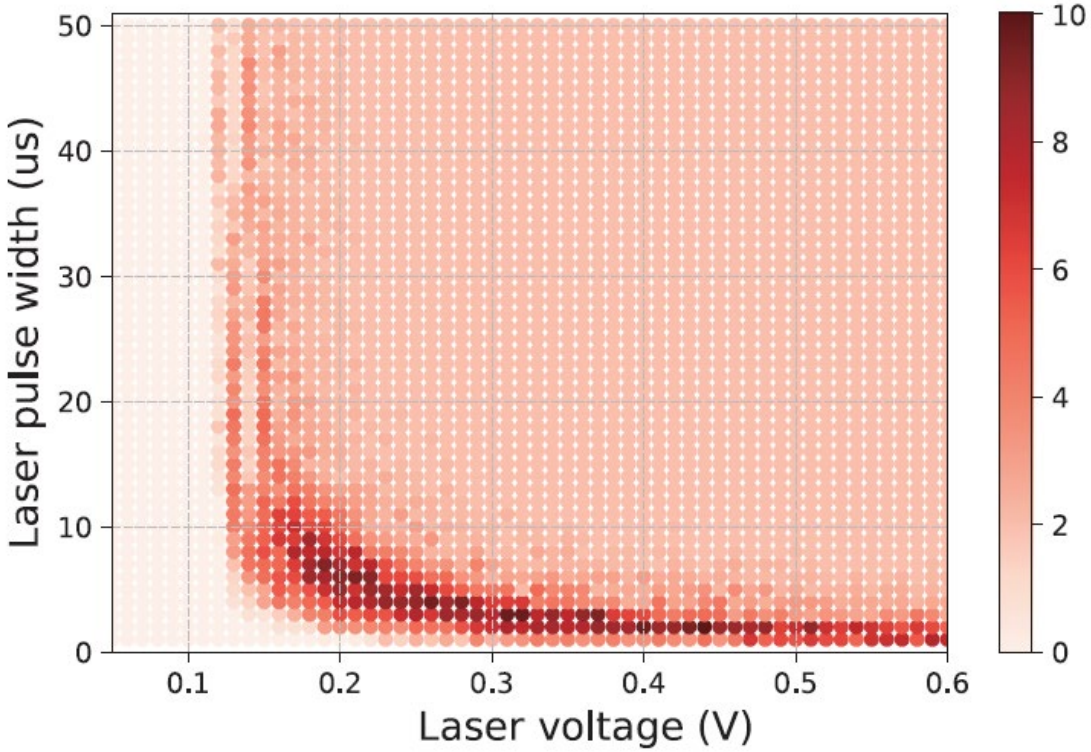


Sensitivity Curve Evaluation: Impact Score (IS)

Sensitivity Curve



Exhaustive Scan



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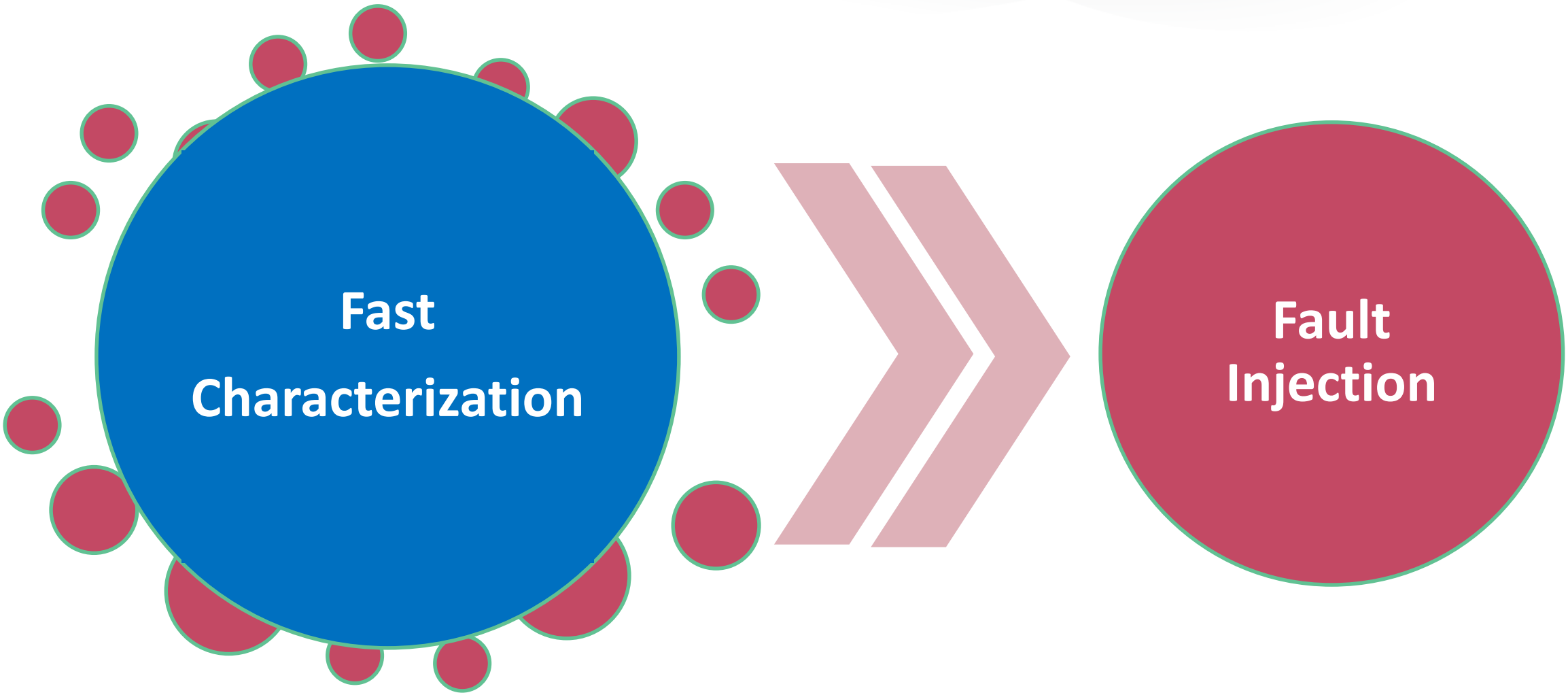
Apply It!

A stable and effective method for real evaluation

Back to Origin



Attack Strategically

Sensitivity Curve Evaluation

Optimal Parameter Selection

Sensitivity Curve Generation

Powerful Attack

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Thank you!

Questions?