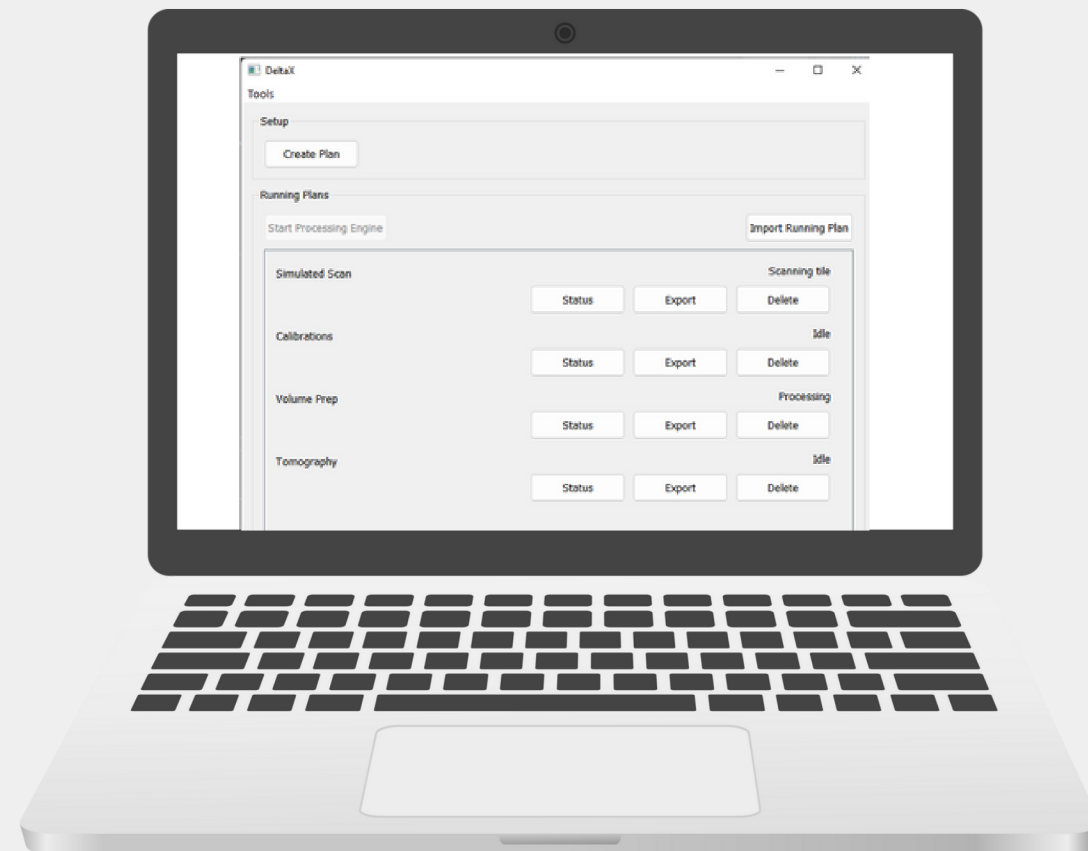




DeltaX



Modular Machine Learning Framework



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Executive Summary

- 01** DeltaX is an open and modular software framework that provides an easy-to-use configurable pipeline for processing terabytes of data for AI test and training, as used in the X-ray image processing application shown in the following
- 02** Pipeline modules run concurrently (in parallel) and can easily be swapped out for other similar modules, so different processing algorithms or external tools can be used, compared, and deployed
- 03** Supports integration of different tools to avoid vendor lock-in
- 04** Check point and restart capabilities to avoid losing progress in case of hardware failures, power outages, etc
- 05** Full traceability of the processing chain for tracking, evaluation, and archival of results
- 06** GUI defined as module, allowing easy swapping of the front-end for different hardware systems and use cases



Positioning

Current ML/AI batching systems are... annoying.

Whether it is failed runs/connections without restart capability or traceability, or a lack of model comparisons with parameter adjustment built-in, current batching systems do not fulfill current needs.

DeltaX is... better

DeltaX not only allows complete traceability and transparency, but has the ability to plug in the algorithms you need - or even whole systems. In short, DeltaX provides a much more modern and modular system for AI/ML analysis at scale.

From Imagination to Evaluation

DeltaX provides support for your data needs from model inception to test and evaluation. Batch processing with tracing, break protection, and parameter adjustments meet your needs not just for development, but through production release.



Easy Plan Configuration

Choose parameters for configuration and saving out models easily



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The 'Create Plan' dialog box is titled 'Create Plan' and contains a 'Plan Config' section. A dropdown menu is open, showing options: 'Simulated Microscope Scan' (selected), 'Simulation Calibrations', 'Image Stitching and Stacking', 'Volume Reconstruction', and 'Volume Reconstruction - LTT'. Below the dropdown, the following parameters are visible:

- Scan extent: X 1832.72 to 1852.72, Y 1751.07 to 1771.07
- Scan angle range: Range: 0.0 to 0.0, # of Values: 1
- Scan FOV mode: LFOV ABS (dropdown)
- Tile overlap: 20 % (slider)
- Mosaic size X: 1 tiles
- Mosaic size Y: 1 tiles
- Chip tilt rotation: -32.5 degrees
- Chip GDSII path: ../../data_non_repo/ta1/ta1_fill_out.gds (with a 'Browse...' button)
- Chip JSON path: ../../data/xradic/model_generation/ta1_silicon_v2.json (with a 'Browse...' button)
- Sample planes per layer: 25
- Starting depth of simulated chip: (empty text box)

Below the parameters is a 'Description' section with a text box containing the text: 'Hover over a parameter to see its description.' At the bottom, there is a 'Current Loaded Plan:' dropdown set to 'None' and four buttons: 'Save', 'Save As...', 'Load', and 'Start'.

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- 01 Select the plan type to configure
- 02 Parameters for configuration; these change based on the plan type selected
- 03 Shows description and valid values for a parameter when the mouse hovers over it
- 04 If a plan configuration was loaded in (as opposed to being a new one), the file path appears here
- 05 Saves the plan configuration to a file for running it later
- 06 Load a plan configuration to edit or start it
- 07 Starts the plan configuration and closes the dialog box, returning to the main window

Plan Status Updates

View plan status, logs, and settings from a single panel



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Simulated Scan

Simulated Scan

Microscope Scan Status

Name	Value
Collection Data Status	Idle
Simulation Microscope Status	Scanning tile
Tiles in Queue	119
Current Scan	Simulated Scan -- Scan
Current Volume	vo_Simulated Scan -- Scan_0_0
Current Mosaic	ms_Simulated Scan -- Scan_0_0_1
Current Tile	tl_Simulated Scan -- Scan_0_0_1_0_0

Scan Queue

tl_Simulated Scan -- Scan_0_0_2_0_0
tl_Simulated Scan -- Scan_0_0_3_0_0
tl_Simulated Scan -- Scan_0_0_4_0_0
tl_Simulated Scan -- Scan_0_0_5_0_0
tl_Simulated Scan -- Scan_0_0_6_0_0
tl_Simulated Scan -- Scan_0_0_7_0_0
tl_Simulated Scan -- Scan_0_0_8_0_0
tl_Simulated Scan -- Scan_0_0_9_0_0
tl_Simulated Scan -- Scan_0_0_10_0_0
tl_Simulated Scan -- Scan_0_0_11_0_0
tl_Simulated Scan -- Scan_0_0_12_0_0
tl_Simulated Scan -- Scan_0_0_13_0_0

Plan Messages

Generating scan data...
Generated scan data
Sending data to microscope...
Successfully sent data to microscope controller
Checking for existing tiles...
Processing tile tl_Simulated Scan -- Scan_0_0_0_0_0...
Found 0 existing tiles
Finished processing tile
Tile tl_Simulated Scan -- Scan_0_0_0_0_0 is complete
Processing tile tl_Simulated Scan -- Scan_0_0_1_0_0...

Show Tiles

Show Output Folder

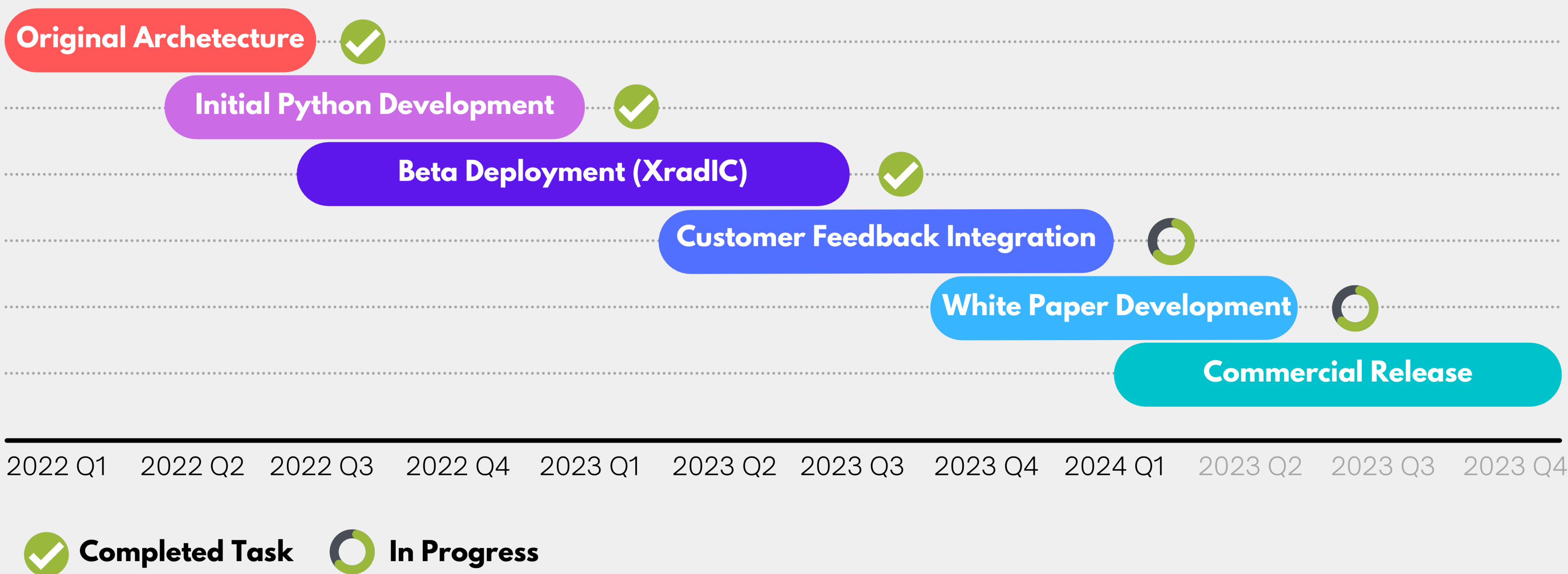
View Configuration

Export

Delete

- 01 Status of plan values
- 02 Queue of items (e.g. images) needing to be processed
- 03 Opens the folder where output data is stored for this plan
- 04 Plan log messages
- 05 View configuration settings that were used for this plan

DeltaX Product Path





Contact us to learn more

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