Unique user interface combines a point-and-click GUI with command-line operations

An Igor Pro graph is a powerful tool for data exploration, analysis and presentation: graphs quickly display thousands, even millions of values.

An Igor Pro "Gizmo" displays 3D data using OpenGL.

Use transparency in graphs to indicate overlapping data.

With only Igor Pro, you can create and present a multi-page slide show containing graphs, Gizmo plots, tables, annotations, drawn objects, and imported graphics.

Define your own buttons, readouts and inputs to produce custom control panels.

Enter data directly into a table, import many data file formats, or acquire data from instruments.

Define your own buttons, readouts and inputs to produce custom control panels.

Sophisticated programming environment — write your own code or build on the work of others.

Igor Pro graphs are publication-quality, with EPS, PDF, and PNG export options.

New plot types include Box Plots, Violin Plots, and "Rug" Plots.

Igor Pro graph data is the result of sophisticated programming environment, which allows users to write their own code or build on the work of others.
Igor Pro

Runs on macOS 10.10 and later, and on Windows 7 and later

Fast Display of Large Data Sets
Interactive Data Exploration
Journal-Quality Graphics
High DPI Display Support
Fully Unicode Text
Powerful Curve Fitting
Extensive Data Analysis & Statistics
Image Processing
Data Acquisition Support
Built-In Programming Environment to Automate Importing, Analyzing, and Displaying Data
Customizable User Interface

Used by Scientists and Engineers Worldwide Since 1989

Technical Computing for Scientists and Engineers

Graphing
• Graph types include highly customizable X-Y plots, contour, image, category, waterfall, box, and violin plots. Create interactive 3D visualization graphics with “Gizmos”.
• Choose from 62 built-in marker symbols, text markers (either a character or from other data), arrow markers, error bars, 17 customizable dashed line types.
• Specify marker color, marker size, or marker type as functions of other data. 72 fill patterns, positive and negative fills, fill between curves, with transparency support.
• Interactively zoom and pan. Use cursors to inspect data values.
• Text annotations, legends, and color scale bars. Use subscripts, superscripts, mixed fonts and styles, with Full Unicode support for mathematical symbols and multiple languages.
• High resolution drawing tools in data or relative coordinates.
• Fully customizable and unlimited numbers of axes. Date and time axes in a wide variety of formats.

Image Plots
• Image plots from matrix and XYZ data.
• Display images using 60 built-in color tables. Create indexed or custom color tables. Limit colors to a range of data.
• Fully customizable color scale bars.

Contour Plots
• Automatic and user-defined, arbitrary contour levels.
• Color or fill contours according to level, indexed from data, or all the same.
• Control contour label style, appearance, and position.

3D Visualization
• Create surface, 3D path, and ribbon plots, 3D scatter and object plots, iso-surface voxelgrams and volume slices with transparencies and textures.

Curve Fitting
• Fit data using built-in and arbitrarily complex user-defined functions with unlimited independent variables and fit parameters; fit to arbitrary subsets; hold coefficients, using multiple threads.
• Apply weighting and linear constraints.
• Levenberg-Marquardt method for nonlinear fitting.
• Orthogonal Distance Regression with built-in parallelization, errors in X, Global Analysis.
• Built-in fits: linear, polynomial (1D & 2D), exponential, double exponential, power law, sine, gaussian (1D & 2D), lorentzian, lognormal, Hill equation, sigmoid.
• Outputs include parameter values, standard deviation and confidence intervals; model curves; residuals; confidence bands; covariance matrix; chi-square.

Presentation

Graphs
• Use page layouts to precisely arrange graphs, tables, pictures, annotations, and drawing elements for printing or export.
• Present a series of layout pages with the Slide Show.

Notebooks
• Igor Pro notebooks provide a built-in, programmable word-processor; use them to record experiment results using text, tables and graphs.

Export
• Print and export high-resolution graphics in EPS, PDF, enhanced metalfile, TIFF, PICT, BMP, SVG, and PNG formats.

Analysis & Statistics
• Full suite of tools for image filtering, manipulation, and quantification.
• Image thresholding; iterated, binomial, adaptive, fuzzy, entropy, and fuzzy means.
• Operations for image arithmetic, arbitrary non-continuous region of interest (ROI) masking, background removal, color segmentation, windowing (Hanning, Hamming, Bartlett, Blackman, Kaiser), blending, histograms, equalization, stack focus, registration, rotation, statistics.
• Particle analysis: number, area, perimeter, circularity, rectangularity, location, raw moments.
• Image morphology: binary and grayscale erosion, dilation, close, open, watershed, tophat, seed fill.
• Edge detection using canny, Frei, Kirsch, Marr, Prewitt, Roberts, Shen, and Sobel methods.
• Image transformations including FFT, Hough, convolution filters (gauss, gradients, median, sharpen, thin, min rank, max rank) color space conversions (RGB, HSL, XYZ), derivatives, correlations, extract and manipulate image data.
• Image import and export TIFF, JPEG, PNG BMP, SunRaster.
• Capture images from live video.

Data Formats/Import/Export
• Millions of data points; 1-4 dimensions.
• Two floating-point and six integer formats, strings, date and time data.
• Special support for waveform (equally-spaced) data.
• Handle files in general binary, delimited text, Excel, Fortran fixed-field, FITS, HDF5, JCAMP, Matlab, Nicolet, TDM, JPEG, PICT, TIFF, BMP, SunRaster, DEM, SDTS (and other GIS) formats, MP3, AIFF, and WAV sound files.
• Access SQL databases through ODBC.
• Create and control MPEG movies.
• Data Browser — organize data into a meaningful hierarchy, graphical previews of data, view and edit wave and variable properties.
• Write your own procedures to import/export custom file formats, or move, copy, and delete files and folders.
• Extract data using regular expressions (“grep”).

Communication
• Support for bi-directional communication with web servers, including new support of encrypted connections using HTTPS.
• Serial communications via NI-PGIB, VDT, and VISA.

Image Analysis
• Support for bi-directional communication with web servers, including new support of encrypted connections using HTTPS.

Programmability
• A full-featured structured programming language to control virtually all aspects of Igor Pro and over 977 built-in functions and operations.
• Automatic data analysis and acquisition setup.
• Multi-processor and threading support for built-in and user-defined routines.
• Long object names (255 bytes).
• Symbolic debugger.
• Procedure Browser allows you to quickly find and filter symbols (functions, macros, etc).
• Create custom interfaces using control panels with buttons, popup menus, lists, sliders, inputs, outputs. Add your own menus, completely or selectively replace Igor’s built-in menus.
• Scriptable via AppleEvents or ActiveX Automation.

Igor Filter Design Lab Included
• Design, apply, and evaluate Finite and Infinite Impulse Response (FIR and IIR) filters in Igor Pro.
• IIR Filters include Kaiser’s Maximum Flatness design, McClellan-Parks-Rabiner equiripple method, window method design (Hanning, Kaiser, Parzen, Welch, etc.).
• FIR Filters include Blasius, Butterworth, Chebyshev and Notch-only.
• View magnitude, phase, group delay, impulse, and step responses.
• Apply designed filters to your data and view the results.

Additional Software

Igor XOP Toolkit
• Enhance Igor Pro’s capabilities with external code modules by combining your own C or C++ code with the Igor XOP Toolkit’s source files.
• Create portable XOP modules for yourself and others to add customized functions, data loaders, data acquisition systems, etc., with their own menus, dialogues, and windows.

Igor NIDAQ Tools MX
• Acquire data directly into Igor Pro using National Instruments “multifunction” data acquisition boards, on Windows 7 or later.
• Pre-programmed control panels provide point-and-click interface for acquisition.
• Customized applications can be created using Igor’s built-in programming language, extended by NIDAQ Tools MX to include data acquisition and control functionality.
• Igor control panels can be used to create a nice user interface for DAQ systems.

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