§11. Development of Visualization Tools for Analyzed Data

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Introduction

User-friendly visualization tools are indispensable for quick recognition of the physical data. We developed two types of visualization tool, idraw and NIFScope. Both tools support MS Windows and Linux. Idraw is a PV-Wave application and the user can easily customize. NIFScope is a native application. NIFScope doesn't require any commercial software, and it can be distributed freely. The characteristics of NIFScope are using GTK+ toolkit and it incorporates Ruby interpreter as an equation evaluator.

idraw

Figure 1 shows the idraw running under MS Windows 2000. Because idraw is written in PV-Wave, it basically independent of operating systems; it is currently working under MS-Windows, and Linux. With idraw, the users can compare several diagnostics data at once by drawing multiple graphs in one window and drawing multiple lines in one graphic area. The setup information, (for example, diagnostics, the color, the line style, etc.), is saved as a text file.

NIFScope

The appearance of NIFScope is shown in Fig 2. The plot area can be split by 9 parts(three columns by three rows), and the user can compare these data by moving line cursor. They can also move and zoom in or out the graph. These GUI of the application is based on JavaScope [1], but the codes of the programs are written in C++. In spite of Java application, native graphical applications usually depend on operating systems; many MS Window applications cannot run on UNIX, and vice versa. However, with GTK+ toolkit, which is open source GUI toolkit, NIFScope supports both MS-Windows and UNIX operating system.

NIFScope has another unique characteristic; which incorporates Ruby interpreter [2] in it. Ruby is an object oriented scripting language, which is widely used in the Internet. Ruby is used as an equation evaluator, and the user can draw not only the original data, but also arbitrary equations or functions. Ruby is also used to load experimental data. Because data loader is written as Ruby's module, it is easy to write user defined format files.

Currently NIFScope supports both the Analyzed Data Server (KAISEKI) System and the LABCOM system.
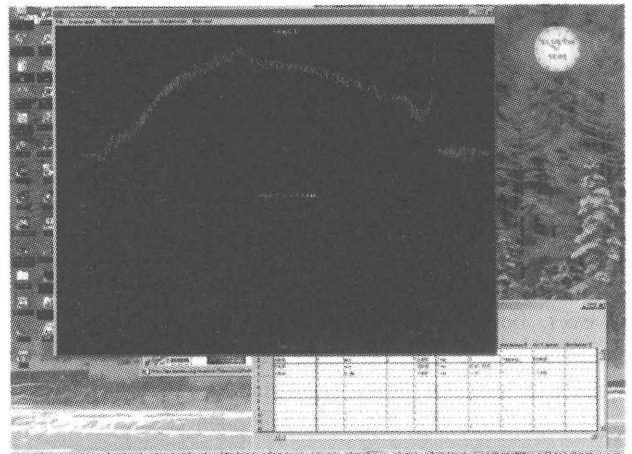

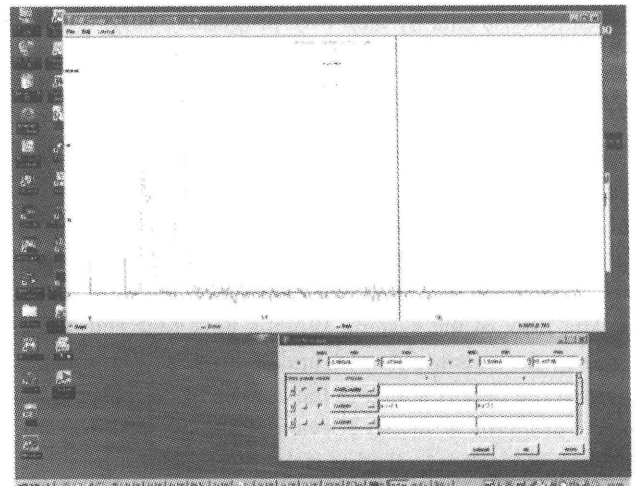Fig. 1. The program idraw launched from PV-Wave 7.0 running on MS Windows 2000.

Fig2. NIFScope running on MS-Windows 2000.

Reference
[1] G.Manduchi, The Java Interface of MdsPlus: towards an Unified Approach for Local and Remote Data Access,, Fus. Eng. Des. 48 (2000) pp.163-170
[2] http://www.ruby-lang.org/en/