

# **Multi-Parameter Databases Remote-access and Automatic Layout and Conjunct Analysis by means of QT Cross-platform Application Framework**

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Some databases such as PhysioNet databases include the record with uncertain number of parameters, and are published though web. Visiting those databases from a local desktop requires software which can access database remotely and display records in a multi-frame layout to hold multi-parameter (signals). This paper proposes developing software by QT graphical C++ toolkit can meet requirements described above and realize other functions in less developing time and higher efficiency. Because the database names are presented by a portal-page of web where each database name is linked to a record-page through hyperlink, we developed two search algorithms for gathering database access information. The first algorithm scans the portal-page and analyzes with key words and hyperlinks, and collects possible database names into a database-list. The second algorithm analyzes each listed database by tracing its hyperlink; If a records-page is finally reached, the records name are included in a records-list, otherwise the name of traced database will be removed from the database-list. After that, clicking a database-name then a relative record-name will trigger software to read record from remote database. The layout mechanism of Qt framework will automatically setup and manage a multi-frame layout to hold the multi-parameter and display it properly in a graphical user interface (GUI). Qts multi-frame layout mechanism together with Qts SIGNAL/SLOT mechanism also gives a flexible way for a conjunct analysis in this software. For example, the wavelet transform coefficient matrix of a signal is shown by image at the middle frame where the SIGNAL is defined, while its relative parameters are displayed by curve at other frames where the SLOT are defined. By SIGNA/SLOT link mechanism, zooming at the image frame can zoom the curve frames synchronously; and moving cursor at image frame, the frequency-variation-curve relating to cursor position will be displayed at another frame. The time axes of relative frames are changed dynamically and synchronously, well indicating the time synchronization among the signal and its relative parameters. Due to QTs cross-platform character, the developed software is easily deployed on Windows, Mac OS X, and UNIX and on embedded devices by simply recompiling codes.