

QccPack: An Open-Source Software Library for Quantization, Compression, and Coding

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We describe the QccPack software package, an open-source collection of library routines and utility programs for quantization, compression, and coding of data. QccPack is being written to expedite data-compression research and development by providing general and reliable implementations of common compression techniques. Functionality of the current release includes entropy coding, scalar quantization, vector quantization, adaptive vector quantization, wavelet transforms and subband coding, error-correcting codes, image-processing support, and general vector-math, matrix-math, file-I/O, and error-message routines. All QccPack functionality is accessible via library calls; additionally, many utility programs provide command-line access.

QccPack is downloadable, free of charge, from the QccPack Web page,

<http://www.ece.msstate.edu/~fowler/QccPack>

where one can find the current release of the source code as well as all available documentation online. Although primary development efforts have concentrated on the Red Hat Linux i386 platform, it should be a straightforward procedure to build QccPack on other varieties of Linux as well as non-Linux UNIX-based systems. To date, QccPack has been compiled successfully on the following systems: Solaris/SPARC, Irix, HP-UX, Digital UNIX Alpha, and Digital RISC/Ultrix.

The majority of the QccPack software package is published under the terms of the GNU General Public License and the GNU Library General Public License which guarantee source-code access to anyone and as well as allow redistribution and modification. Exceptions to this open licensing strategy are made for certain patented algorithms; in these cases, only non-commercial use is permitted.

Development of QccPack was begun in 1997 and continues to this day, with new versions of QccPack being released frequently. Despite a continual state of development, most of the QccPack code has stabilized now to the point where it can be of great use to the general data-compression community, although much of the planned documentation is presently lacking. The QccPack development effort welcomes contributions from the data-compression research community. The current functionality of QccPack necessarily reflects the research interests (e.g., image/video coding) of its primary author; it is hoped that, as other researchers join the development effort, QccPack will be augmented with a broad range of techniques spanning the spectrum of current data-compression applications.

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