

WinHeart® – a Computer Program for Studying the Interpretation of Electrocardiograms and ECG Knowledge Evaluation

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The aim of this report was to describe the development of a computer program oriented towards electrocardiography, based on a new phenomenological model. The implemented model enables the user to simulate more than 21 million different electrocardiograms. Most of the common heart disorders are included: axis deviations, atrial and ventricular hypertrophies, blocks of branches and fascicles, myocardial infarctions and arrhythmias (sinus rhythm disturbances, sinus-atrial blocks, atrioventricular blocks, preexcitation syndromes, nodal rhythms, extrasystoles, ventricular arrhythmias). The user interface is graphically oriented. To achieve a higher degree of reality, different resolutions (1, 1/2 and 1/5 mV/cm), recording speeds (25, 50 and 100 mm/s), and several sources of artifacts were included (muscle contractions, power-line interference, electrode contact artifact and baseline drift due to the respiration). The program was developed for MS-Windows and Macintosh operating systems, and is available in Croatian, German and English language versions. It is run on a 25-MHz 386 computer with the 4-MB RAM, VGA graphic card, and Windows 3.1 (Macintosh 7.0) or newer versions.