

## Computer graphics

# A space-age approach to medicine

*A computer graphic technique to quantify heart damage is being developed at NRC to assist the cardiologist in making more objective diagnoses.*

Computers are complex and powerful tools for accumulating, recording, analyzing and distributing great volumes of information in incredibly short periods of time. In the last 30 years, computer technology developments have led to its involvement in almost every aspect of our daily lives from the mundane processing of bills to assisting doctors in saving lives.

One medical area in which the computer plays an increasingly important

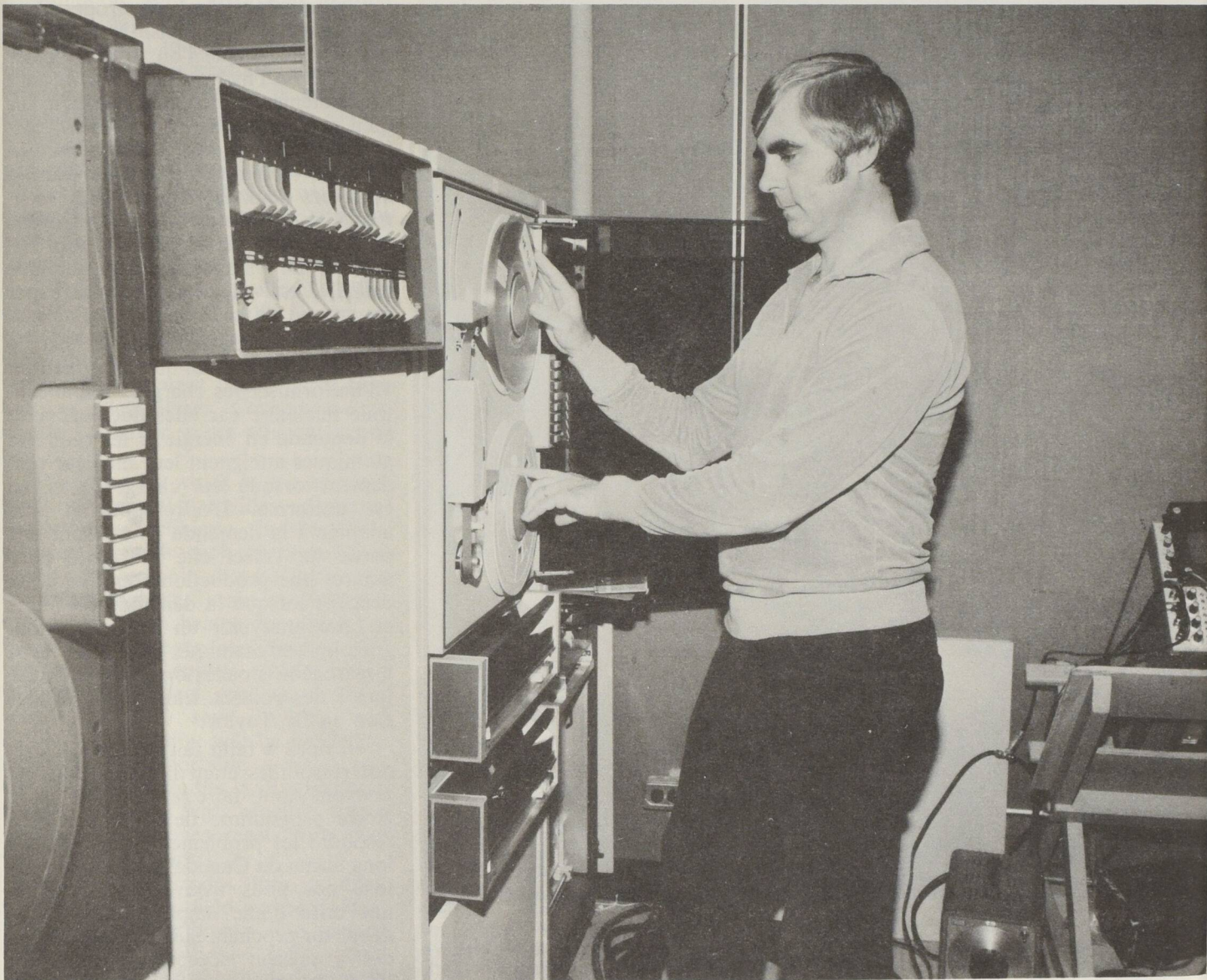
**Mike Duggan loads a tape in preparation for data analysis with the computer graphic terminal.**

role is heart disease, the foremost killer in North America. Although surgical techniques and medications are highly sophisticated, the assessment of heart damage before surgery often depends on the subjective evaluation of the cardiologist. Results from standard techniques, such as electrocardiograms, are often not sufficient to diagnose a heart condition. Angiocardiography (an X-ray method to visualize the condition of the heart walls) while precise in detecting heart problems, does not provide the cardiologist with a numerical or quantitative analysis to better assess the proper course of action.

**Mike Duggan monte une bande magnétique pour l'analyse de données qu'il pourra suivre sur la console de visualisation infographique.**

It is ironic that the very organ that supplies life-sustaining oxygen to the entire body is also one of the most sensitive to its diminished supply. In our society the most common cause of heart disease is coronary arteriosclerosis, a condition in which the coronary arteries become partially or completely clogged by plaque deposits of cholesterol and fats. When the occlusion is major the patient may suffer a heart attack (myocardial infarct) — in which oxygen deprived heart tissue dies, causing permanent damage to the heart muscle. In serious cases heart function may be impaired to the extent where insufficient amounts of oxygenated blood are supplied to the body.

In the heart, it is the left ventricle



Bruce Kane, NRC/CNRC