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NASA TECH BRIEF

Goddard Space Flight Center

Small Interactive Image Processing System [SMIPS]

The problem:

Increased machine/user interaction was required for an image processing system.

The solution:

A small interactive image processing system (SMIPS) has been designed to facilitate the acquisition, digital processing, and recording of image data, as well as pattern recognition in an iterative mode.

How it's done:

To allow the use of existing image processing programs, the SMIP system is fully compatible with the VICAR (video image communication and retrieval) system. A SMIPS user can execute any image processing program in the VICAR library.

Operation of the SMIP system is similar to the use of a desk calculator. It is a repeated sequence of single requests followed by responses. The user requests a computation by typing a command, pressing a function key, or using a light pen. The system responds with the display of a message or picture on the screen of the graphics terminal or by indicating the completion of the request with an audible alarm signal.

Three modes of operation can be distinguished. In the dialogue mode, each command is interpreted, and the appropriate processor is called for execution. In the input mode, each command is interpreted as a request for an image processing task; the corresponding program must exist in the systems library.

These requests are inserted into the task queue file. This is the feature that provides the extendability of the system without increasing the core size. New image processing programs are added to the library, and can then be specified as tasks in the input mode. The image processing tasks queued in the task queue are processed in the task processing mode.

Notes:

1. This program was developed using IBM ASSEMBLER and FORTRAN IV to be utilized on the IBM 360.
2. Inquiries concerning this program should be directed to:

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   112 Barrow Hall
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   Athens, Georgia 30601
   Reference: GSC-12079

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