COMPUTATION

Over the past eighteen months the Department of Genetics has established a firm commitment in the use and development of applications of computers. This orientation has stemmed primarily from the needs of the instrumentation research program in connection with exobiology and also with molecular-biological investigations in genetic chemistry and in neurobiology. To supplement the hardware engineering effort of the instrumentation program, we have taken on several full-time computer programmers in order to take full advantage of our access to the IBM 7090 and B5000 systems at the computation center, as well as the smaller LINC instrumentation computer housed within the department. These facilities are directed towards the capability of sophisticated processing of instrumental data directly on the LINC, and participation in a remote time-sharing on-line use of the 7090 which Professor McCarthy of the Computer Sciences Division is responsible for. We are currently negotiating with industrial and governmental sources for the placement of a microminiature computer of 7090-style capabilities to simulate what might be included in a planetary facility and to help pioneer the biomedical applications of the next generations of computers (miniature, megaword memory modules, submicrosecond cycle times) which we foresee will significantly reorient human culture within the next two decades.

At the present time we are negotiating a full professorial appointment in computer sciences jointly with the Computer Sciences Division.

Computational facility also plays an important role in our graduate training program.

At the present time the principal applications of computation in the department are in the reduction and processing of analog data from biochemical instruments, in particular the analysis of mass spectrometer data, and the analysis of vital statistics, with special reference to differential fertility and environmental factors that may be related to birth injuries and to mental retardation.

JLederberg
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