

STANFORD UNIVERSITY
STANFORD, CALIFORNIA 94305

DEPARTMENT OF MUSIC
CCRMA

15 January 1985

Robot Ballet p'24
sent 1/23/85

Mr. Joseph Engelberger
Unimation Inc.
Shelter Rock Lane
Danbury, CT 06810

Dear Mr. Engelberger:

It is perhaps unlikely that people in such diverse fields as industrial engineering and computer music would have any interaction other than at a social level. It is with some amusement and a great deal of enthusiasm that I write to you about an idea that may be of professional interest to us both. Your name was given to me by Vic Scheinman, a long-time friend from the Stanford Artificial Intelligence Lab days.

Several months ago, composer Michael McNabb and engineer Gayle Curtis presented to me an idea which I found utterly compelling and timely, and one which the Center for Computer Research in Music and Acoustics (CCRMA) at Stanford would like to pursue.

The idea: The composition and performance of a computer robot ballet
(with robots and dancers)

The interaction of art and technology is the main focus at CCRMA and we feel that a piece such as this will be of great interest to the public and will emphasize the humanization of computers (and robots).

We expect this "robot ballet" will reach a large audience. We plan to perform it at Frost Amphitheatre at Stanford (in the heart of Silicon Valley) in the fall of 1985, and as part of the New Music America Festival in Los Angeles in November. If there is enough interest, there is a high possibility that the piece will be included "on tour" by a major dance company and could result in a documentary film as well.

In addition to the public aspects of the piece, the development of robots for choreography and performance will result in research and usable software and hardware for the control of robots in general. Work in this area has already begun in conjunction with Stanford professor Larry Leifer and the Veterans Administration in developing voice commanded robotic arms to be manipulators for severely disabled people. This project uses Unimation model 250 and 560 PUMA arms. As a member of this project, Gayle Curtis has extended this work into the realm of control of movement as illustrated and explained in the enclosed video tape and description. The emphasis is in software and specialized hardware that is usable by non-technical people for the control of robots.

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Michael McNabb has received a grant from the National Endowment for the Arts to compose the music for the ballet. (A recording of recent work by him is enclosed.) Funding is needed to develop and implement the robots and for choreography of the ballet. Funding requirements are as follows:

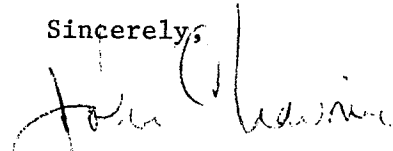
\$26,000 for development and implementation of the robotic
software and hardware

\$15,000 for the choreography and performance of the ballet

We currently have the use of the robots at the VA research project. For more extensive research and development into the movement of robots for this project it would be useful for us to have dedicated access to or loan of a suitable robot and controller.

Might Unimation be interested in supporting such a project?
Or might you have any suggestions for alternative sources?

Sincerely,



John Chowning
Professor of Music
Director CCRMA

JC/hk
Enclosures

cc: Larry Leifer
Vic Scheinman - full enclosures
Les Earnest - no encl.