STANFORD UNIVERSITY
STANFORD, CALIFORNIA 94305

CENTER FOR COMPUTER RESEARCH IN MUSIC AND ACOUSTICS
DEPARTMENT OF MUSIC

Telephone:
(415) 497-4971

October 28, 1979

Mr. Howard Klein, Director for Arts
Rockefeller Foundation
1133 Avenue of Americas
New York, New York 10036

Dear Mr. Klein,

Stanford University's Center for Computer Research in Music and Acoustics (CCRMA) is in need of some short term but critical funding help. This need stems from

> 1) a two year delay of potentially substantial royalty income from Nippon Gakki (YAMAHA) for an invention developed within CCRMA and
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> 2) a recent change of status within the university which requires that CCRMA acquire an independent computing system.

The first involves program support and the second capital equipment. I will give a brief background of each need with the amount for which we are searching. We are also attempting to identify individuals and industry in the San Francisco area who might be able to help. At the moment it seems that there is some small chance that a local industry may help with goods-in-kind for a part of our computing system.

BACKGROUND AND FUNDING NEEDS:

1) In 1975 Nippon Gakki Co. (YAMAHA) signed an agreement with Stanford University for exclusive rights to a patent which is in my name but assigned to Stanford and which represents a digital synthesis technique to be used in a new generation of electronic keyboard instruments. At the time, YAMAHA estimated 3-4 years for research and development of this patent. Although there will be limited production in 1981, a mass production instrument will not begin to be marketed until 1982. The royalty agreement stipulates that Stanford will receive $10/unit produced, of which approximately $3/unit will be assigned to CCRMA. YAMAHA currently produces 18,000 units/month of the old technology instruments, which if only partially realized with the Stanford patent will provide CCRMA and the university with a considerable income. It is with this income that we had hoped to support a part of our teaching and composition programs in addition to that research of a more musical nature which is not appropriate for funding from the National Science Foundation (NSF).

Since 1975 CCRMA has received a total of $630,000 in research support from NSF. Approximately one third of the total goes directly to the university as indirect costs. From the remainder we have supported various operating costs, two graduate students each year, a full-time system programmer, and ca 1/2 of the staff salaries. The shortfall has been made up from university funds and by "farming out" staff to the Institute de Recherche et Coordination Acoustique-Musique (IRCAM), the

music research institute in Paris directed by Pierre Boulez (J.A. Moorer 6/77 - 7/79 and Chowning 12/78 - 9/79). It is this shortfall for the years 1980 and 1981 for which we now need funding.

	1980	1981
Anticipated staff costs for:	$161,380	$174,291
Expected from NSF and Stanford for research and teaching support of staff salaries:	$ 69,374	$ 74,924
Expected shortfall and funds requested for two years of program support:	$ 92,006	$ 99,367

2) Since 1964 the work in computer music has been done in the Computer Science Department's Artificial Intelligence Laboratory. This laboratory has been operated as a cooperative venture with both computer science and music contributing to the development of the facility in proportion to their use. A major part of CCRMA's hardware contribution to the facility came from a one-time grant in 1975 of $160,000 from the National Enfowment for the Arts. Plans have been made over the past several years for for CCRMA to move with the Artificial Intelligence Project into a new Computer Science building which has just been completed. Now, because of unforeseen space constraints in the Computer Science building, CCRMA must become independent and acquire its own system in the next months.

The university has very carefully looked after our interests in this unanticipated separation from computer science and has made available space, physical plant support and up to $100,000 for the purchase of equipment. In addition, we have successfully negotiated with YAMAHA an advance in royalties which will provide $90,000, all of which will be applied to equipment purchase. The remainder we must seek from other sources.

Cost of CCRMA computing system: $298,000

Funds acquired:

Source:	
Stanford University	$100,000
Yamaha	$ 90,000
total	$190,000

Funds requested for computing system: $108,000

JUSTIFICATION:

CCRMA has reached a rather prominent position in research and composition, both in this country and abroad. Our special capabilities in both scientific research and music composition represent a unique interaction between science, high level technology, and the arts. In addition to our teaching and research functions at Stanford, we also serve as a national resource to the larger musical community through a summer workshop, positions for more extended periods for composers and researchers, and through aiding other universities in the development of programs for computer research and composition. We have not only served to some extent as a model for Boulez's institute,

but a substantial interaction and cooperation between the two centers has developed. In 1976 IRCAM acquired the same computer which we have in order to have access to all of the programs which we have developed over the years. This has saved IRCAM tens of man-years of development work, which in a commercial context would have resulted in a large financial return to CCRMA. In the arts such a financial transaction cannot happen, nor should it, which means that the viability of an activity such as CCRMA must find its support elsewhere.

Of course, we cannot expect massive government support for our project as can IRCAM in Paris. Although CCRMA has received more research support from NSF than any university humanities department in the country, it is nevertheless a limited resource and we must look as well to our own resourcefulness and to the private sector. In view of NSF's continuing interest in the scientific aspects of our work, the university's considerable support, and the fact that eventual royalty income could be substantial, the long term prospects look rather good that we can become self-supporting. It is this immediate need that worries me.. we do need some help in maintaining the viability of CCRMA during the next several years.

In summary, perhaps the most distinctive aspect of CCRMA is the breadth of its activity which is in part reflected in our funding history: Stanford University, NEA, NSF, YAMAHA, and some support from individuals. Unlike most musical organizations such as the large orchestras and opera companies we have been able to breach the traditional funding boundaries because our work represents a unique intersection of music (composition and automatic music manuscripting), mathematics (signal processing), psychology (psychoacoustics), and computer technology.

There are a number of people who know our work rather well in both the scientific and artistic domains including Max Mathews at Bell Telephone Laboratories (the "father" of computer music), John Pierce at CalTech, and Pierre Boulez who has spent ten days working on our system and knows our work rather well. Should it be of help to you I can ask them to write to you on our behalf.

I wonder if it might be possible for me to make a presentation to you and your staff at the foundation in order to give a fair representation of the depth and scope of our work? I can come to New York and would be more than happy to do so.. or alternatively, should you and/or some of your staff be coming to California we could give a demonstration here at Stanford.

Sincerely,

John M. Chowning
Professor of Music
Stanford University

enclosures:

1. Overview of CCRMA
2. Music printing example by computer program developed by Leland Smith
3. Miscellaneous items