NORTH CAROLINA STATE UNIVERSITY | AT RALEIGH

SCHOOL OF PHYSICAL AND MATHEMATICAL SCIENCES

DEPARTMENT OF COMPUTER SCIENCE
P. O. Box 5972
RALEIGH, N. C. 27607

April 18, 1978

Douglas A. Lyon
125 Startton Rd
New Rochelle, N.Y. 10804

Dear Douglas,

It gives me great pleasure to inform you that your application for the Student Science Training Program in Computers and Computing at North Carolina State University was approved by the Selection Committee.

We sincerely hope that you will be able to accept this invitation. We request that you sign and return the enclosed letter with your decision indicated. The information must be postmarked not later than May 1, 1978.

It is understood that acceptance obligates you to:

a. Attend for the full duration of the project (July 5 - August 10, 1978) without taking time out for any other activity.
b. Promptly decline any subsequent offers as a participant in another SSTP.

Upon receit of your acceptance, further information will be forwarded to you by June 1, 1978.

We are looking forward to hearing from you and hope you will be with us this summer.

Sincerely yours,

THomas L. Honeycutt
NSF SSTP Computers and Computing

TLH:bah
Enclosure

P.S. You have been awarded financial aid in the amount of $.00.

AI CYBERNETIC VØICE SYNTHESIZER PRØJECT II

NSF-SSTP SUMMER SIMULATIØN PRØJECT

RUSSELL BARNES DØUGLAS LYØN

THE AI MØDEL 1000 SPEECH SYNTHESIZER WAS INTERFACED WITH AN IMSAI 8080 MICRØCØMPUTER SYSTEM TØ SIMULATE THE HUMAN VØCAL TRACT. THE WØRDS ARE SYNTHESIZED FRØM THE BASIC PHØNETIC UNITS ØF SPEECH ASSØCIATED WITH THE AMERICAN ENGLISH LANGUAGE. ALTHØUGH ITS SPEECH IS NØT AS INTELLIGIBLE AS DIGITALIZED SPEECH, THE MØDEL 1000 IS NØT LIMITED BY PRERECØRDED SPEECH.

THE AI MØDEL 1000 SPEECH SYNTHESIZER WAS ØRIGINALLY ADJUSTED TØ CØNVERT THE ASCII EQUIVALENTS ØF ENGLISH LETTERS TØ THEIR CØRRESPØNDING SØUNDS. HØWEVER, CHANGES IN THESE SYMBØLS WERE REQUIRED TØ PRØDUCE MAXIMUM INTELLIGIBLE SPEECH.

IF THE IMSAI IS LØADED WITH THE FØLLØWING CØDE, DIFFERENT SØUNDS CAN BE PRØDUCED TØ DISCØVER THE DIFFERENT PHØNEMES. THE DATA IS ENTERED THRØUGH THE PRØGRAMMED INPUT SWITCHES ØN THE FRØNT PANEL ØF THE IMSAI.

000	333	INP	INPUT DATA FRØM
001	377		PØRT 255 (377_8)
			PRØGRAMMED INPUTS
002	323	ØUT	ØUTPUT DATA TØ
003	376		PØRT 254 (376_8)
			MØDEL 1000
004	303	JMP	UNCØNDITIØNAL JUMP TØ
005	000		000 (LØ)
006	000		000 (HI)

THE FØLLØWING CØDE ALLØWS THE USER TØ ØUTPUT A CHAIN ØF PHØNEMES TØ PØRT 377_8. THE PHØNEMES ARE THRØWN ØUT AT A RELATIVELY LARGE TIME INTERVAL, SINCE THE CAPACITØRS REQUIRE TIME TØ DISCHARGE WHEN CØMPLETING EACH PHØNEME. THERE IS ALSØ A TIMING LØØP TØ SLØW THE SPEECH TØ AN INTELLIGIBLE LEVEL.

THE DATA BEGINS AT 007 000_8 AND MUST END WITH A 007_8 CØNTRØL CHARACTER TØ SIGNIFY THE END ØF THE DATA TØ THE PRØGRAM. A SPACE CHARACTER IS ALSØ INSERTED AFTER THE LAST PHØNEME AND BEFØRE THE CØNTRØL CHARACTER TØ CAUSE THE SYNTHESIZER TØ ØUTPUT A PAUSE BEFØRE IT IS ENDED. THIS KEEPS THE SYNTHESIZER FRØM SØUNDING THE LAST PHØNEME CØNTINUØUSLY WHILE THE PRØGRAM IS IN THE RUN/HALT STATE.

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000   041   LXI H     LØAD FIRST DATA ADDRESS
001   000             INTØ H REGISTER PAIR
002   007
003   333   IN        INPUT
004   376             MØDEL 1000 STATUS
005   346   ANI       MASK
006   001             AND TRY AGAIN
007   312   JZ        IF BUSY
010   003
011   000
012   346   ANI       CLEAR ACCUMULATØR
013   000
014   305   ADI       SET UP DELAY LØØP
015   024             FØR 20(10) TIMES
016   326   SUI
017   001
020   302   JNZ
021   015
022   000
023   176   MØV A,M   LØAD DATA INTØ ACCUMULATØR
024   326   SUI       CHECK FØR CØNTRØL
025   007             CHARACTER (007(8))
026   312   JZ
027   267
030   000
031   306   ADI       RESTØRE ACCUMULATØR WITH
032   007             ØRIGINAL DATA
033   323   ØUT       ØUTPUT DATA TØ MØDEL 1000
034   376
035   043   INX H     INCREMENT DATA ADDRESS
036   001   LXI B     TIMING LØØP BEGINS
037   377
040   377
041   062   STA
042   277
043   000
044   021   LXI D
045   377
046   377
047   326   SUI
050   001
051   312   JZ
052   057
053   000
054   303   JMP
055   047
056   000
057   072   LDA
060   277
061   000
```

```
062    326    SUI
063    001
064    312    JZ
065    003
066    000
067    303    JMP         JUMP ØUT ØF TIMING LØØP
070    041
071    000

267    166    HLT         STØP EXECUTIØN Ø F PRØGRAM
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