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# Naval Postgraduate School Computer Center Newsletter / 1975-09-09

Monterey, California, Naval Postgraduate School

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NEWSLETTER

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NPS JOINS NLCC

On 9-10 July 1975, the School hosted a meeting of the Navy Laboratory Computing Committee (NLCC). The Director of Navy Laboratories had invited NPS to participate in this committee's activities along with ten Navy Laboratories and R&D centers. Professor Williams (Director, Computer Center) was nominated as the School's representative. NLCC plans to create a computer network connecting the major systems in the various laboratories-- CDC 6600/6700's, UNIVAC 1108/1110's and the TI-ASC to be installed at NRL. The existing ARPA network will be used for communication and each laboratory computer will be connected to it through a PDP 11/40 minicomputer interfaced both to the local host system and an existing ARPANET IMP/TIP via a Very Distant Host (VDH) interface. (Incidentally the ARPANET is now under the management control of the Defense Communications Agency.) Installation of the standardized hardware interfaces and communications links is scheduled to begin later this year.

NPS is investigating the possibility of joining the proposed network. One obvious advantage would be the ability of faculty and student researchers to access specialized facilities at the laboratories of their sponsors or collaborators.

## CONTOUR PLOT FOR UNEVENLY-SPACED DATA AND IRREGULAR BOUNDARIES

Subroutine CONISD has recently been added to the NPS Source Library. It performs Calcomp plotting for  $z=f(x,y)$  data where the  $(x,y)$  points are not distributed in any particular pattern. The user specifies the outer boundary points for any number of interior regions which are to be excluded from the contouring process. Contour levels also need not be equidistant. Various other options are also provided. The routine was developed by R. Hilleary and L. Nolan of the Center's staff. They would appreciate hearing from users who try it on particular problems. CONISD has been added to SYS1.MPSLIB; it may be called from any Fortran program run with NPS cataloged procedures without obtaining a source deck. Running time is less than 20 seconds for a problem with about 50 points. However problems with more than 500 points may require more than 15 minutes of execution time. CONISD requires approximately 110K bytes.

An individual copy of the subroutine writeup can be obtained as follows:

```
// (Standard OS JOB Card)
// EXEC PRTYPUNCH
//SYSIN DD *
CONISD
/*
```

## TAPE STATISTICS SCANNER

A new utility for scanning magnetic tapes has been installed on the system. Program TAPESTAT reads a magnetic tape to the end-of-volume mark and accumulates certain statistics.

For each file a record is kept of the number of blocks (physical records) per file, the number of bytes in the first block, the number of bytes in the largest and smallest blocks, the density, the parity, and the number of tape reading errors.

To use TAPESTAT on a 9-track 800 bpi tape, the following Job Control Language is required:

```
// (Standard JOB Card - See Section 3.3.2.1 of User's Manual)
// EXEC TAPESTAT,VOL='vol'
/*
```

where 'vol' is the volume name of the tape to be scanned.

To use either 7-track tapes or 1600 bpi tapes, the following JCL is required:

```
// (Standard JOB card - See Section 3.3.2.1 of User's Manual)
// EXEC TAPESTAT,VOL='vol',UNIT='unit'
/*
```

where 'unit' is '254' for 9-track 1600 bpi tapes and '2400-1' for all 7-track tapes.



For a complete description of TAPESTAT usage, a write-up can be obtained by submitting the following OS deck:

```
// (Standard JOB Card - See Section 3.3.2.1 of User's Manual)
// EXEC PRTPUNCH
//SYSIN DD *
TAPESTAT
/*
```

### COPYING TAPE FILES

Many users ask how to copy complete tapes or selected files from one tape to another. At present no program exists at the Center which will copy an entire tape (including labels, headers, and trailers) without user specification of information concerning each file. However the COPY procedure, which is normally used to copy a card deck, can be modified to copy tape files one at a time.

The following JCL is an example of how to copy the first file of a 1600 bpi tape named MYTAPE to the first file of a 1600 bpi NPS labelled tape (NPSnmm):

```
// (Standard JOB Card)
//ONE EXEC COPY
//SYSUT2 DD UNIT=3400-3,VOL=SER=NPSnmm,DISP=(NEW,PASS),
// LABEL=(1,SL),DSNAME=name2,DCB=(RECFM=FB,LRECL=80,
// BLKSIZE=3200,DEN=3)
//SYSPRINT DD SYSOUT=A
//SYSUT1 DD UNIT=3400-3,VOL=SER=MYTAPE,DISP=(OLD,PASS),
// LABEL=(1,SL),DSNAME=name1,DCB=(RECFM=FB,LRECL=80,
// BLKSIZE=3200,DEN=3)
```

It is important when using the COPY cataloged procedure that the SYSUT2 DD statement which defines the new file to be created precedes the SYSUT1 DD statement which defines the old file which is read.

To copy additional file or files from the same tape, the following deck(s) can be appended to the above job:

```
//step EXEC COPY
//SYSUT2 DD UNIT=*.ONE.SYSUT2,VOL=(,RETAIN,REF=*.ONE.SYSUT2),
// DISP=(NEW,PASS),DSNAME=namei,LABEL=(n,SL),
// DCB=*.ONE.SYSUT2
//SYSPRINT DD SYSOUT=A
//SYSUT1 DD UNIT=*.ONE.SYSUT1,VOL=(,RETAIN,REF=*.ONE.SYSUT1),
// DISP=(OLD,PASS),DSNAME=namej,LABEL=(m,SL),
// DCB=*.ONE.SYSUT1
```

where step is a unique 1-6 character name  
namei is the data set name on the new file n  
n is the file to be written ("2" for second file)  
namej is the data set name on the old file m  
m is the file to be read ("2" if second file)

A reasonable number of these decks can be appended to deck step ONE in order to copy multiple files. If too much JCL is requested a 422 abnormal termination code results. If that happens, break the job into fewer steps.

The parameters on the DD cards must correctly specify the input and output tapes. For more information on DD statements relating to tapes see Section 3.6.3.2 of the User's Manual. Also please ask for assistance from the programming consultant in In-146.

#### CHANGES IN PROGRAMMING AIDS LIBRARY

The following changes in the Programming Aids Library have been made:

1. The program NEWDEK has been changed to accept input from tape, disk or data cell as well as cards. It translates a source deck from BCD (026 key-punch) to EBCDIC (029 keypunch) or vice-versa. An additional feature has been added so that output can be written on data cell, disk or tape as well as punched cards.
2. Instructions for obtaining an example of and directions to use TPS (Text Processing System) have been added to the Programming Aids Library.
3. DUBLIT, a program to convert Fortran source decks from single to double precision has been added to the library. It accepts input and produces output on tape, disk, data cell or cards. Technical Note 0211-25 has been revised to reflect these changes and additions. Copies will be available in In-146.

#### CLASS PROJECT NUMBERS

Current class project numbers in the series 1000-1099 will become invalid after 26 September. Instructors should obtain second quarter class project numbers beginning the week of 22 September. Please call the Information Services Office, X2731.

#### USE OF TECHNICAL NOTES IN CLASSES

The Center attempts to keep a small but adequate inventory of each of its technical notes. We keep on hand only enough to serve the needs of casual users. If an instructor makes an assignment involving use of a technical note, we probably will run out of that item. Therefore, we are asking each instructor to let us know well in advance if he intends students to use one of our publications. Please call the Information Services Office, X2731.

#### SUBROUTINE LIBRARY CHANGES

Added to Source Library:

J5 CONISD      Calcomp Contour plot, irregular data  
MO TAPESTAT    Tape Statistics Scanner

Revised in Source Library (and any other library occupied):

Q0 CCHECK      check data cards for format errors  
Q0 EDIT        text editor from programming aids library



Q0 FLOWCH print flowcharts of Fortran programs  
 Q0 FXREF Fortran IV source deck cross reference lister  
 Q0 LISTER general card lister  
 Q0 NEWDEK translates BCD (026 punch) to EBCDIC ( )29 punch) and vice versa  
 Q0 SEQNCE (re) sequence one or more decks  
 V1 LLRANDOM (includes subroutines OVFLOW,INT,SINT,RANDON,SRAND,NORMAL,SNORM,EXPON,SEXPON) random number generator package

NOTE: LLRANDOM has also been added to SSPLIB under CP/CMS.

RECENT ADDITIONS TO THE LIBRARY (In-162)

Books

| <u>Author</u>     | <u>Title</u>   |
|-------------------|--|
| Myers, C. A.      | Computers in Knowledge-Based Fields                              |
| Jardine, D. A.    | Data Base Management Systems                                     |
| Cagan, C.         | Data Management Systems  |
| Gregg, L. W.      | Knowledge & Cognition  |
| Lucas, H. C.      | Toward Creative Systems Design                                   |
| Ord-Smith, et al  | Computer Simulation of Continuous Systems                        |
| Turn, R.          | Computers in the 1980's  |
| Streeter, D. N.   | The Scientific Process & the Computer                            |
| Kaimann, R. A.    | Structured Information Files                                     |
| Halstead, M. H.   | Laboratory Manual for Compiler & Operating System Implementation |
| Kleinrock, L.     | Queueing Systems (Volume I: Theory)                              |
| Wiener, N.        | Time Series  |
| Rheinboldt, W. C. | Methods for Solving Systems of Nonlinear Equations               |

Reports

| <u>Number</u> | <u>Title</u>  | <u>Author/Organization</u> |
|---------------|---|----------------------------|
| 1156          | Generating Gamma & Cauchy Random Variables  | Robinson & Lewis (NPS)     |
| 1157          | The ASSIST Assembler & Interpreter  | Univ. of British Columbia  |
| 1158          | Users Guide to PL/C: Cornell Compiler for PL/I  | Univ. of Michigan          |
| 1159          | Fortran Analyzer  | Lyon & Stillman            |
| 1160          | Technical Guide to Computer-Communications Interface Standards  | Neumann, et al.            |
| 1161          | KBDATA--Bank of Effective Sociometric Data Sets   | Bernard, et al.            |
| 1162          | Operating System Specification using High Level Dictions  | Markstein, P.              |
| 1163          | Project Shalmanzar Utility Routines and Programs for UNIVAC 1108 Users  | Erline, T. F.              |
| 1164          | PAKUNPK: A Set of General Purpose Computer Routines to Accomplish Word Packing and Unpacking, For Use With the CDC Fortran FTN Compiler | Golden, M. E.              |

RECENT ADDITIONS TO THE LIBRARY (In-162) Continued

National Technical Information Service (NTIS)

AD A-004632 Economical Storage of Plane Rotations  
A-004867 Interactive Curve Fitting Analysis  
A-005315 Computers, Personal Privacy & Human Choice  
A-004968 A Subdivision Algorithm for Computer Display of Curved Surfaces  
A-004964 Preprocessing Cones: Computational Structure for Scene Analysis  
A-005012 Investigation of the Efficient Connection of Very High Speed  
Graphics terminals to a Large Scale Computing Facility  
A-002288 Structured Programming & Compiling in a Minicomputer Environment

Proceedings

| <u>Organization</u>   | <u>Title</u>   |
|-----------------------|--|
| Share                 | Share XLIV (Volumns I, II, & III), March 1975                      |
| University of Cornell | Summer Institute for Symbolic Logic, 1957                          |
| ACM                   | SIGPLAN: International Conference on Reliable Software, April 1975 |
| ACM                   | SIGCOMM/SIGOPS: Interprocess Communications Workshop, March 1975   |

The Newsletter is written by members of the staff, W. R. Church Computer Center (Code 0211), Naval Postgraduate School, Monterey, California 93940. Requests for further information or suggestions on articles for the Newsletter may be addressed to the User Services Manager, Code 0211, (In-133). Telephone: X2752 (or 2573 and leave message).

The Center provides batch processing service under IBM 360/Operating System (OS/MVT) and time-sharing service under CP-67/CMS. These Services are based on a dual-processor IBM 360 Model 67 system with 1.25 megabytes of core storage.

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