

**RESEARCH IN UNDERGRADUATE INSTITUTIONS (RUI)
PROPOSAL TO THE NATIONAL SCIENCE FOUNDATION
Cover Page**

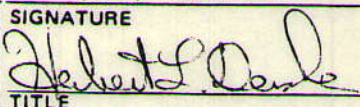

FOR CONSIDERATION BY NSF ORGANIZATIONAL UNIT (Indicate the most specific unit known, i.e. program, division, etc.) CISE Div. of Computer Research - Special Projects Program		IS THIS PROPOSAL BEING SUBMITTED TO ANOTHER FEDERAL AGENCY? Yes <input type="checkbox"/> No <input checked="" type="checkbox"/> ; IF YES, LIST ACRONYM(S):	
PROGRAM ANNOUNCEMENT/SOLICITATION NO.: RUI Program (NSF 83-79)		CHECK TYPE OF AWARD: <input type="checkbox"/> Research <input checked="" type="checkbox"/> Research Instrumentation	
NAME OF SUBMITTING ORGANIZATION TO WHICH AWARD SHOULD BE MADE (INCLUDE BRANCH/CAMPUS/OTHER COMPONENTS) Hope College			
ADDRESS OF ORGANIZATION (INCLUDE ZIP CODE) Holland, MI 49423			
TITLE OF PROPOSED PROJECT CSNET Membership in Support of Computer Science Research			
REQUESTED AMOUNT \$9375	PROPOSED DURATION Three Years	DESIRED STARTING DATE September, 1987	
PI/PD NAME AND SOCIAL SECURITY NO. (SSN)* Herbert L. Dershem 271-40-8660		PI/PD PHONE NO. 616-392-5111	
PI/PD DEPARTMENT Computer Science		PI/PD ORGANIZATION Hope College	
ADDITIONAL PI/PD AND SSN*		ADDITIONAL PI/PD AND SSN*	
<small>*Submission of social security numbers is voluntary and will not affect the organization's eligibility for an award. However, they are an integral part of the NSF information system and assist in processing the proposal. SSN solicited under NSF Act of 1950, as amended.</small>			
By submission of this proposal, the above organization hereby certifies, as evidenced by the signatures below, that the proposal is from a department which offers courses leading to a bachelor's or a masters degree, but does not offer a doctorate and is located on a campus where the total number of science and engineering doctorates awarded by the campus as a whole did not exceed 20 in the two calendar years preceding the proposal submission date.			
CHECK APPROPRIATE BOX(ES) IF THIS PROPOSAL INCLUDES ANY OF THE ITEMS LISTED BELOW:			
<div style="display: flex; flex-wrap: wrap;"> <div style="width: 33%;"><input type="checkbox"/> Animal Welfare</div> <div style="width: 33%;"><input type="checkbox"/> Human Subjects</div> <div style="width: 33%;"><input type="checkbox"/> National Environmental Policy Act</div> <div style="width: 33%;"><input type="checkbox"/> Endangered Species</div> <div style="width: 33%;"><input type="checkbox"/> Marine Mammal Protection</div> <div style="width: 33%;"><input type="checkbox"/> Research Involving Recombinant DNA Molecules</div> <div style="width: 33%;"><input type="checkbox"/> Historical Sites</div> <div style="width: 33%;"><input type="checkbox"/> Pollution Control</div> <div style="width: 33%;"><input type="checkbox"/> Proprietary and Privileged Information</div> </div>			
PRINCIPAL INVESTIGATOR/ PROJECT DIRECTOR	HOME INSTITUTION: AUTHORIZED ORGANIZATIONAL REP.	HOST INSTITUTION - IF ANY; AUTHORIZED ORGANIZATIONAL REP.	
NAME Herbert L. Dershem (616) 392-5111	NAME Irwin J. Brink (616) 392-5111	NAME	
SIGNATURE 	SIGNATURE 	SIGNATURE	
TITLE Professor of Computer Science	TITLE Dean for the Natural Sciences	TITLE	
DATE May 1, 1987	DATE May 1, 1987.	DATE	

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NATIONAL SCIENCE FOUNDATION

PROJECT SUMMARY

FOR NSF USE ONLY

DIRECTORATE/DIVISION	PROGRAM OR SECTION	PROPOSAL NO.	F.Y.
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NAME OF INSTITUTION (INCLUDE BRANCH/CAMPUS AND SCHOOL OR DIVISION)

Hope College

ADDRESS (INCLUDE DEPARTMENT)

Department of Computer Science
Hope College
Holland, MI 49423

PRINCIPAL INVESTIGATOR(S)

Herbert L. Dershem

TITLE OF PROJECT

CSNET in Support of Computer Science Research

TECHNICAL ABSTRACT (LIMIT TO 22 PICA OR 18 ELITE TYPEWRITTEN LINES)
THE OBJECTIVE(S) OF THIS PROJECT IS (ARE):

This project will provide CSNET support to the Hope College Computer Science Department to improve the ability of four faculty members and their undergraduate student assistants to carry on research. Areas of research benefitted by this project will be concurrent systems analysis and design, software development environments, computer graphics, artificial intelligence, and programming languages.

1 Project Description

1.1 Research Needs and Plans

On a general level, all research projects which are going on now and in the future will benefit from CSNET access through the increased availability of software from repositories. Because these repositories are serviced by information servers that dispatch software via electronic mail, rather than simply making software available for copying over Telnet/FTP, these valuable services are now much more accessible. This kind of access makes other work more accessible and moves the research process along more rapidly by permitting the use of public domain software to relieve the burden of producing the same software locally.

Specific research projects that would benefit from new access are several. Michael Jipping from our department is currently involved in two research projects. The first is a joint effort with investigators from the University of Iowa. It involves the performance analysis and simulation of concurrent algorithms on various architectures. Because this is a project of several researchers who are geographically divided, the ability to communicate electronically is invaluable.

Dr. Jipping's second project is the construction of an integrated design environment for concurrent systems. He is currently involved in designing a specification language for the descriptions of concurrent system processes and concurrency control. This environment will be composed of several concurrent system analysis tools, a specification assistant, and an implementation generator. Prototype tools have been implemented and they include a concurrency control evaluator and a system design comparator.

Researchers that would be contacted via CSNET include coinvestigators, authors of concurrent algorithms, reviewers, and other studying the same areas. This set contains Steve Bruell (University of Iowa), Bill Decker (University of Iowa), Carla Ellis (Duke University), Ray Ford (University of Iowa), Dennis Friedel (Hewlett-Packard Corp.), Gerald Fisher (Courant Institute), Chris Marlin (University of Adelaide, Adelaide, South Australia), Roger Schultz (University of Iowa), Mike Wagner (Siemens Research), Brion Wenhardt (University of Iowa), David Yam (Carnegie-Mellon University), among a host of others.

Dr. Jipping has applied for support for his work to the NSF Division of Computer and Computation Research, the Software Systems Division. His proposal title is "A Methodology and Supporting Environment for Concurrent Systems Design," Proposal ID Number CCR-8714339.

In addition to Dr. Jipping's research, the other three members of the Computer Science department are actively developing research programs for which access to CSNET will be extremely useful. This includes Dr. Herb Dershem in the fields of probabilistic expert systems, programming languages, and geometric algorithms, Professor Jim Slack in software development environments, and Professor Gordon Stegink in computer graphics.

1.2 Anticipated Extent of Use

As described in the previous section, CSNET will be used by all four Computer Science faculty members. The CSNET will be used most extensively by Dr. Jipping and his two undergraduate research assistants. It will also be valuable to Dr. Dershem who is presently writing a textbook in Programming Languages and will use CSNET to keep abreast of current research in this field. Professor Slack plans to work on a Ph.D. in Computer Science starting in 1988, spending a period of time at a University and then returning to Hope College as he completes his dissertation. Access to CSNET will be very helpful to him during all phases of this project.

The institution will benefit by having a more vital research program in Computer Science. This will lead to better preparation of our students for graduate school, increased ability to attract quality faculty, and improved outside funding opportunities.

The institution is committed to continuing the support of CSNET membership after the expiration of this grant.

1.3 CSNET Membership Application

CSNET MEMBERSHIP APPLICATION

1. Name Herbert L. Dershem
Organization Hope College
Address Department of Computer Science
City Holland State MI Zip 49423
Telephone (616) 392-5111 Ext. 3002

2. Membership Class (check one)

University X
Non-profit
Government
Industrial
ARPANET (must be an ARPANET member currently)

3. Type of Service Desired

PhoneNet X
X25Net

4. Relevant Research Activities

CSNET is chartered to support research and advanced development in computer science and related fields. Applicants must demonstrate a genuine research need in computer science by submitting with the application a list of existing or proposed research projects that would benefit from network access. Please attach brief descriptions of several such projects, including names of the principal investigators and of other researchers to be contacted via CSNET.

5. Host Information

CPU Type SUN 3/160M
Operating System UNIX 4.2
Local Mailer send mail

Return to:

Laura Breeden
CSNET CIC
BBN Laboratories Inc.
10 Moulton Street
Cambridge, MA 02238
617/497-2777

1.4 Certification of CSNET Eligibility



Coordination and Information Center

CSNET CIC
BBN Laboratories Inc.
10 Moulton Street
Cambridge, MA 02238
(617) 497-2777
cic@csnet-sh

13 February 1987

Herbert L. Dershem
Hope College
Department of Computer Science
Holland, MI 49423

Certification of CSNET Eligibility for Hope College

This letter certifies that the abovementioned institution has applied for membership in CSNET and has met the requirements for membership, as established by the National Science Foundation and the CSNET Executive Committee.

A handwritten signature in cursive script that reads "Joanne Rheume".

Joanne Rheume
CSNET CIC

cc: Larry Oliver, NSF

2 Curriculum Vitae

2.1 Herbert L. Dershem

2.1.1 Address

Department of Computer Science
Hope College
Holland, MI 49423

2.1.2 Education

Ph.D. in Computer Science August, 1969, Purdue University, West Lafayette, IN 47907.
Dissertation: *Approximation of Bessel's Differential Operator of Fractional Order by Finite-Difference Operators*. Advisor: R.E. Lynch

M.S. in Computer Science June 1967, Purdue University, West Lafayette, IN 47907.

B.S. in Mathematics University of Dayton, Dayton, OH 45469.

2.1.3 Research Interests

Programming Languages: programming language design; programming support environments; programming methodologies.

Artificial Intelligence: AI programming languages and environments; probabilistic expert systems; AI tutoring systems.

Computer Science Education: Approaches to teaching computer science, predictors of success; curriculum models.

2.1.4 Professional Experience

Professor, Department of Computer Science, Hope College, Holland, MI 49423 (August 1969-present). Chair of the Department since 1977.

Professor of Computer Information Systems, Boston University Overseas Program, Boston, MA 02215 (August, 1982-July, 1983).

Visiting Research Scientist, Oak Ridge National Laboratory, Oak Ridge, TN 37831 (July, 1977-June, 1978).

2.1.5 Professional Societies

ACM, ACM-SIGCSE, IEEE Computer Society, American Association for Artificial Intelligence

2.1.6 Professional Activities (1981-1987)

- Consultant to 8 businesses, 7 industries, and 12 educational institutions.
- Delivered 50 public lectures.
- Taught graduate courses in Computer Science for Central Michigan University to Amway employees, military personnel, and health care professionals.
- Visiting Rufus Foundation Professor, Ripon College, November, 1983.
- Taught and directed six workshops for precollege teachers.
- Reviewer of articles, books, and NSF proposals.
- Interim Director of Computer Services, Hope College, July-August, 1984.

2.1.7 Grants and Awards

- Director or co-director of three NSF grants for Computer Science education, 1971-3, 1978-80, 1979-80.
- Oak Ridge Associated Universities Summer Fellow, 1977.
- NASA/ASEE Summer Research Fellow, Goddard Space Flight Center, 1976.
- Grant for Project COMPUTe, Dartmouth College, 1974.

2.1.8 Publications

- "Approximation of the Bessel Eigenvalue Problem by Finite Differences," *SIAM J. Numer. Anal.*, 8,4(Dec, 1971), pp. 706-716.
- "Bessel Difference Systems of Fractional Order," *Math. Anal. and Appl.*, 39,3 (Sept,1972), pp. 558-563.
- "A Course on Computing and Statistics for Social Science Students," *Proceedings of the 1972 Conference on Computers in the Undergraduate Curricula*, pp. 525-528.
- "A Relationship Between Approximation Theory and Statistical Measurements," *Pi Mu Epsilon Journal*, 6,2(Spring, 1975), pp. 69-74.
- "Database Management Systems: An Evaluation of their Potential Use in the Management Systems Office, *NASA Technical Report*, Goddard Space Flight Center, 1976.
- *Computers in the Teaching of Mathematics: A State of the Art Report*, CONDUIT, May, 1977, with D. Smith, D. McLaughlin, and A. Ziebur.

- "An Experience Component for Undergraduate Computer Science Education," *SIGCSE Bulletin*, 10,1(Feb, 1978), pp. 24-26.
- "Computer Science at a Liberal Arts College," *College Curriculum in Computer Science, Engineering, and Data Processing*, 1978, pp. 128-132.
- "Factor Game," *Personal Computing*, 2,6(June, 1978), pp. 44-49.
- "Introducing Elementary School Children to the Computer," *Calculators and Computers*, 2,6(Sept/Oct, 1978), pp. 69-71, with J. Whittle.
- *Computer Exercises for Elementary Statistics*, Compress, Inc., 1979.
- *Computers in Teaching: 1979 State of the Art Report of Instructional Computing, Mathematics, and Statistics*, CONDUIT, 1979, with D. Smith.
- "A Survey of Computing in Private Liberal Arts Colleges," *Journal of Data Education*, 19,2(Jan, 1979), pp. 7-10.
- "Recursive Programming in BASIC," *Personal Computing*, 3,4(Apr, 1979), pp. 16-18.
- "A General Game Playing Program," *Personal Computing*, 3,6(June, 1979), pp. 70-75.
- "TRS-80: Tower of Hanoi," *Recreational Computing*, 8,3(Nov-Dec, 1979), pp. 34-35.
- "Using Computer Games to Challenge Elementary School Students," *The Computing Teacher*, 7,5(Apr/May, 1980), pp. 32-34, with J. Whittle.
- "A Computer Workshop for Elementary and Secondary Teachers," *Proceedings of the 1980 National Educational Computing Conference*, 1980, pp. 65-67, with J. Whittle.
- "Recursive Programming in BASIC," *Digital Design*, 10,7(July, 1980), pp. 20-24.
- *Computer Problem Solving*, Educational Development Center, Project UMAP, 1980.
- *Iteration and Computer Problem Solving*, Educational Development Center, Project UMAP, 1980.
- "A Modular Introductory Computer Science Course," *SIGCSE Bulletin*, 13,1(Feb, 1981), pp. 177-181.

2.2 Michael J. Jipping

2.2.1 Address

Department of Computer Science
 Hope College
 Holland, MI 49423
 (616) 392-5111

2.2.2 Education

Ph.D. in Computer Science, May 1986, The University of Iowa, Iowa City, IA 52242.
Dissertation: "An Information-Based Methodology for the Design of Concurrent Systems." Advisor: Ray Ford.

M.S. in Computer Science, December 1984, The University of Iowa, Iowa City, IA 52242.

B.S. in Computer Science, May 1981, Calvin College, Grand Rapids, MI 49506.

2.2.3 Research Interests

Concurrent computing systems and parallel programming: design, implementation, and modeling of concurrency control; parallel programming methodologies; interprocess communication mechanisms.

Programming languages: programming language design and implementation; compiler construction; programming methodologies; programming support environments.

2.2.4 Professional Experience

Assistant Professor, Department of Computer Science, Hope College, Holland, MI 49423 (starting August, 1987).

Assistant Professor, Department of Computer Science, The University of Iowa, Iowa City, IA 52242 (August, 1986-August, 1987). Taught courses on programming language concepts and compiler construction. Participated in departmental academic and research activities as well as personal research projects.

Visiting Lecturer, Department of Computer Science, The University of Iowa, Iowa City, IA 52242 (January, 1986-July, 1986). Taught courses on programming language concepts and system software. Also participated in departmental academic and research activities as well as personal research projects.

Research Assistant, Department of Computer Science, The University of Iowa, Iowa City, IA 52242 (July, 1985-December, 1985). Funded by a grant from the Hewlett-Packard Company. Research on concurrent systems, focusing on modeling, design, and performance issues.

Research Assistant, Department of Computer Science, The University of Iowa, Iowa City, IA 52242 (September, 1984-June, 1985). General assistance of faculty in aspects of their research. Included programming, preparation of figures and slides, and special text formatting interfaces.

Programming Consultant, Department of Computer Science, The University of Iowa, Iowa City, IA 52242 (January, 1983-August, 1987). Assisted various university departments and area businesses in the design and maintenance of software on a variety of mini and micro computer systems (including VAX, PRIME, Apple, and IBM PC).

Teaching Assistant, Department of Computer Science, The University of Iowa, Iowa City, IA 52242 (September, 1981-August, 1984). Four semesters of classroom teaching (two in "FORTRAN Programming" and two in "Survey of Computing") and four semesters assisting with courses (including undergraduate programming and graduate courses in artificial intelligence and compiler construction).

Applications Programmer, Squirt, Inc., Holland, MI 49423 (May, 1982-August, 1982). Design and implemented laboratory quality control software and instructed lab staff as to its use.

Systems Programmer (part-time), Calvin College Computer Center, Grand Rapids, MI 49506 (September, 1979-August, 1981). Developed, implemented, and maintained system software on two PRIME minicomputers.

User Consultant (part-time), Calvin College Computer Center, Grand Rapids, MI 49506 (February, 1979-May, 1979). Assistant students in computer use and program design and debugging.

2.2.5 Professional Societies

A.C.M., A.C.M.-SIGPLAN

2.2.6 Professional Activities

Referee for the International Conference on Parallel Processing.

2.2.7 Research Grant Awards

- M.J. Jipping, "A Specification Language for Designing Concurrent Systems," University of Iowa Old Gold Summer Fellowship, June-July, 1987.

2.2.8 Publications and Reports

- M.J. Jipping and R. Ford, "An Information Based Model of Concurrency Control," Department of Computer Science, The University of Iowa, Iowa City, IA (February 1987). Submitted for publication.
- R. Ford, M.J. Jipping, R. Shultz, and B. Wenhardt, "On the Performance of Concurrent Tree Algorithms," Department of Computer Science, The University of Iowa, Iowa City, IA (December 1986). Submitted for publication.

- M.J. Jipping and R. Ford, "Predicting Performance for Concurrency Control Design," *1987 ACM SIGMETRICS Conference on Measurement and Modeling of Computer Systems*, Banff, Alberta, Canada (May 1987) [to appear].
- M.J. Jipping and R. Ford, "Performance Prediction in Distributed System Design," *Proceedings of the 1986 Rockwell International Software Engineering Symposium*, pp. 3.2.1-3.2.8, Cedar Rapids, IA (October 1986).
- M.J. Jipping, "An Information-Based Methodology for the Design of Concurrent Systems," Ph.D. Thesis, Technical Report 86-01, The University of Iowa, Iowa City, IA (May 1986).
- R. Ford, M.J. Jipping, and R. Shultz, "On the Performance of an Optimistic Concurrent Tree Algorithm," Technical Report No. 85-07, Department of Computer Science, The University of Iowa, Iowa City, IA (August 1985).
- R. Ford, R. Shultz, and M.J. Jipping, "Performance Evaluation of Distributed Concurrency Control Mechanisms," *Proceedings of the Fourth Symposium on Reliability of Distributed Software and Database Systems*, pp. 84-89, Silver Springs, MD (October 1984).

2.3 James M. Slack

2.3.1 Address

Department of Computer Science
 Hope College
 Holland, MI 49423

2.3.2 Education

M.S. in Computer and Communication Sciences , May 1984, University of Michigan, Ann Arbor, Michigan.

B.S. in Business Administration , December 1977, Central Michigan University, Mt. Pleasant, Michigan.

2.3.3 Research Interests

Software Development Environments: design of correct programs, use in introductory programming courses, compiler and interpreter integration.

2.3.4 Professional Experience

Instructor , Department of Computer Science, Hope College, Holland, Michigan, 49423
(September 1985 to present).

Freelance Programmer (September 1984 to July 1985).

Teaching Assistant , Department of Computer and Communication Sciences, University of Michigan, Ann Arbor, MI (September 1982 - May 1984).

Operations Research Technician , Gerber Products Company, Fremont, Michigan
(January 1978 - August 1980).

2.3.5 Professional Societies

ACM, ACM-SIGPLAN

2.3.6 Grants and Awards

- J.M. Slack, "Design of a Program Development Environment Which Enforces Logical Design," Matthew J. and Anne C. Wilson Foundation Faculty Development Fund Grant (Summer 1986).

2.4 Gordon A. Stegink

2.4.1 Address

Department of Computer Science
Hope College
Holland, MI 49423

2.4.2 Education

A.M. in Mathematics June 1963, Washington University, St. Louis, MO.

A.B. in Mathematics June 1961, Hope College, Holland, MI 49423.

Graduate Work in Computer Science at Pennsylvania State University, Summer terms, 1967 and 1968.

2.4.3 Research Interests

Computer Graphics: Solids Modeling; Workstations; Rendering Algorithms.

Systems Analysis: Modeling Tools; User Environments.

2.4.4 Professional Experience

Associate Professor, Department of Computer Science, Hope College, Holland, MI 49423 (August 1981-Present). Acting Chair of the Department 1982-1983.

Manager of Computer Operations and User Services, Grand Valley State Colleges, Allendale, MI 49401 (August 1970-August 1981).

Assistant Professor of Mathematics and Computer Science, Grand Valley State Colleges, Allendale, MI 49401 (August 1970-August 1974).

Assistant Professor of Mathematics, Dickinson College, Carlisle, PA (August 1965-August 1970).

Graduate Fellow, Department of Mathematics, Washington University, St. Louis, MO (August 1961-August 1965).

2.4.5 Professional Societies

ACM, ACM-SIGGRAPH

2.4.6 Professional Activities

- Consultant to several businesses and organizations.
- Delivered public lectures on computing practices.
- Taught workshops for college faculty and Holland community.

				FOR NSF USE ONLY					
ORGANIZATION Hope College				PROPOSAL NO.		DURATION (MONTHS)			
						Proposed	Granted		
PRINCIPAL INVESTIGATOR/PROJECT DIRECTOR Herbert L. Dershem				AWARD NO.					
A. SENIOR PERSONNEL: PI/PD, Co-PI's, Faculty and Other Senior Associates (List each separately with title; A.6. show number in brackets)				NSF FUNDED PERSON-MOS.		FUNDS REQUESTED BY PROPOSER		FUNDS GRANTED BY NSF (IF DIFFERENT)	
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5. () OTHERS (LIST INDIVIDUALLY ON BUDGET EXPLANATION PAGE)									
6. () TOTAL SENIOR PERSONNEL (1-5)									
B. OTHER PERSONNEL (SHOW NUMBERS IN BRACKETS)									
1. () POST DOCTORAL ASSOCIATES									
2. () OTHER PROFESSIONALS (TECHNICIAN, PROGRAMMER, ETC.)									
3. () GRADUATE STUDENTS									
4. () UNDERGRADUATE STUDENTS									
5. () SECRETARIAL-CLERICAL									
6. () OTHER									
TOTAL SALARIES AND WAGES (A+B)									
C. FRINGE BENEFITS (IF CHARGED AS DIRECT COSTS)									
TOTAL SALARIES, WAGES AND FRINGE BENEFITS (A+B+C)									
D. PERMANENT EQUIPMENT (LIST ITEM AND DOLLAR AMOUNT FOR EACH ITEM EXCEEDING \$1,000:)									
TOTAL PERMANENT EQUIPMENT									
E. TRAVEL 1. DOMESTIC (INCL. CANADA AND U.S. POSSESSIONS)									
2. FOREIGN									
F. PARTICIPANT SUPPORT COSTS									
1. STIPENDS \$									
2. TRAVEL									
3. SUBSISTENCE									
4. OTHER									
TOTAL PARTICIPANT COSTS									
G. OTHER DIRECT COSTS									
1. MATERIALS AND SUPPLIES									
2. PUBLICATION COSTS/PAGE CHARGES									
3. CONSULTANT SERVICES									
4. COMPUTER (ADPE) SERVICES							3125.00		
5. SUBCONTRACTS									
6. OTHER									
TOTAL OTHER DIRECT COSTS									
H. TOTAL DIRECT COSTS (A THROUGH G)							3125.00		
I. INDIRECT COSTS (SPECIFY)									
TOTAL INDIRECT COSTS									
J. TOTAL DIRECT AND INDIRECT COSTS (H + I)							3125.00		
K. RESIDUAL FUNDS (IF FOR FURTHER SUPPORT OF CURRENT PROJECTS GPM 252 AND 253)									
L. AMOUNT OF THIS REQUEST (J) OR (J MINUS K)							\$ 3125.00	\$	
PI/PD TYPED NAME & SIGNATURE*				DATE		FOR NSF USE ONLY			
Herbert L. Dershem				4/27/87		INDIRECT COST RATE VERIFICATION			
INST. REP. TYPED NAME & SIGNATURE*				DATE		Date Checked		Date of Rate Sheet	
Irwin Brink				4/27/87				Initials - DGC	
								Program	

ORGANIZATION Hope College PRINCIPAL INVESTIGATOR/PROJECT DIRECTOR Herbert L. Dershem				FOR NSF USE ONLY			
				PROPOSAL NO.	DURATION (MONTHS)		
				Proposed	Granted		
AWARD NO.							
A. SENIOR PERSONNEL: PI/PD, Co-PI's, Faculty and Other Senior Associates (List each separately with title; A.6. show number in brackets)				NSF FUNDED PERSON-MOS.	FUNDS REQUESTED BY PROPOSER		FUNDS GRANTED BY NSF (IF DIFFERENT)
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1.							\$
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5. () OTHERS (LIST INDIVIDUALLY ON BUDGET EXPLANATION PAGE)							
6. () TOTAL SENIOR PERSONNEL (1-5)							
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1. () POST DOCTORAL ASSOCIATES							
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6. () OTHER							
TOTAL SALARIES AND WAGES (A+B)							
C. FRINGE BENEFITS (IF CHARGED AS DIRECT COSTS)							
TOTAL SALARIES, WAGES AND FRINGE BENEFITS (A+B+C)							
D. PERMANENT EQUIPMENT (LIST ITEM AND DOLLAR AMOUNT FOR EACH ITEM EXCEEDING \$1,000:)							
TOTAL PERMANENT EQUIPMENT							
E. TRAVEL 1. DOMESTIC (INCL. CANADA AND U.S. POSSESSIONS)							
2. FOREIGN							
F. PARTICIPANT SUPPORT COSTS							
1. STIPENDS \$							
2. TRAVEL							
3. SUBSISTENCE							
4. OTHER							
TOTAL PARTICIPANT COSTS							
G. OTHER DIRECT COSTS							
1. MATERIALS AND SUPPLIES							
2. PUBLICATION COSTS/PAGE CHARGES							
3. CONSULTANT SERVICES							
4. COMPUTER (ADPE) SERVICES						3125.00	
5. SUBCONTRACTS							
6. OTHER							
TOTAL OTHER DIRECT COSTS							
H. TOTAL DIRECT COSTS (A THROUGH G)						3125.00	
I. INDIRECT COSTS (SPECIFY)							
TOTAL INDIRECT COSTS							
J. TOTAL DIRECT AND INDIRECT COSTS (H + I)						3125.00	
K. RESIDUAL FUNDS (IF FOR FURTHER SUPPORT OF CURRENT PROJECTS GPM 252 AND 253)							
L. AMOUNT OF THIS REQUEST (J) OR (J MINUS K)						\$ 3125.00	\$
PI/PD TYPED NAME & SIGNATURE*				DATE	FOR NSF USE ONLY		
Herbert L. Dershem				4/27/87	INDIRECT COST RATE VERIFICATION		
INST. REP. TYPED NAME & SIGNATURE*				DATE	Date Checked	Date of Rate Sheet	Initials - DGC
Irwin Brink				4/27/87			Program

		FOR NSF USE ONLY			
ORGANIZATION		PROPOSAL NO.		DURATION (MONTHS)	
PRINCIPAL INVESTIGATOR/PROJECT DIRECTOR		AWARD NO.		Proposed	Granted
Hope College					
Herbert L. Dershem					
A. SENIOR PERSONNEL: PI/PD, Co-PI's, Faculty and Other Senior Associates (List each separately with title; A.6. show number in brackets)		NSF FUNDED PERSON-MOS.		FUNDS REQUESTED BY PROPOSER	
		CAL.	ACAD	SUMR	FUNDS GRANTED BY NSF (IF DIFFERENT)
1.					\$
2.					\$
3.					
4.					
5. () OTHERS (LIST INDIVIDUALLY ON BUDGET EXPLANATION PAGE)					
6. () TOTAL SENIOR PERSONNEL (1-5)					
B. OTHER PERSONNEL (SHOW NUMBERS IN BRACKETS)					
1. () POST DOCTORAL ASSOCIATES					
2. () OTHER PROFESSIONALS (TECHNICIAN, PROGRAMMER, ETC.)					
3. () GRADUATE STUDENTS					
4. () UNDERGRADUATE STUDENTS					
5. () SECRETARIAL-CLERICAL					
6. () OTHER					
TOTAL SALARIES AND WAGES (A+B)					
C. FRINGE BENEFITS (IF CHARGED AS DIRECT COSTS)					
TOTAL SALARIES, WAGES AND FRINGE BENEFITS (A+B+C)					
D. PERMANENT EQUIPMENT (LIST ITEM AND DOLLAR AMOUNT FOR EACH ITEM EXCEEDING \$1,000.)					
TOTAL PERMANENT EQUIPMENT					
E. TRAVEL 1. DOMESTIC (INCL. CANADA AND U.S. POSSESSIONS)					
2. FOREIGN					
F. PARTICIPANT SUPPORT COSTS					
1. STIPENDS \$					
2. TRAVEL					
3. SUBSISTENCE					
4. OTHER					
TOTAL PARTICIPANT COSTS					
G. OTHER DIRECT COSTS					
1. MATERIALS AND SUPPLIES					
2. PUBLICATION COSTS/PAGE CHARGES					
3. CONSULTANT SERVICES					
4. COMPUTER (ADPE) SERVICES				3125.00	
5. SUBCONTRACTS					
6. OTHER					
TOTAL OTHER DIRECT COSTS					
H. TOTAL DIRECT COSTS (A THROUGH G)				3125.00	
I. INDIRECT COSTS (SPECIFY)					
TOTAL INDIRECT COSTS					
J. TOTAL DIRECT AND INDIRECT COSTS (H + I)				3125.00	
K. RESIDUAL FUNDS (IF FOR FURTHER SUPPORT OF CURRENT PROJECTS GPM 252 AND 253)					
L. AMOUNT OF THIS REQUEST (J) OR (J MINUS K)				\$ 3125.00	\$
PI/PD TYPED NAME & SIGNATURE*		DATE		FOR NSF USE ONLY	
Herbert L. Dershem		4/27/87		INDIRECT COST RATE VERIFICATION	
INST. REP. TYPED NAME & SIGNATURE*		DATE		Date Checked	Initials - DGC
Irwin Brink		4/27/87			
					Program

				FOR NSF USE ONLY			
ORGANIZATION Hope College				PROPOSAL NO.		DURATION (MONTHS)	
						Proposed	Granted
PRINCIPAL INVESTIGATOR/PROJECT DIRECTOR Herbert L. Dershem				AWARD NO.			
A. SENIOR PERSONNEL: PI/PD, Co-PI's, Faculty and Other Senior Associates (List each separately with title; A.6. show number in brackets)				NSF FUNDED PERSON-MOS.	FUNDS REQUESTED BY PROPOSER		FUNDS GRANTED BY NSF (IF DIFFERENT)
				CAL.	ACAD	SUMR	
1.							\$
2.							\$
3.							
4.							
5. () OTHERS (LIST INDIVIDUALLY ON BUDGET EXPLANATION PAGE)							
6. () TOTAL SENIOR PERSONNEL (1-5)							
B. OTHER PERSONNEL (SHOW NUMBERS IN BRACKETS)							
1. () POST DOCTORAL ASSOCIATES							
2. () OTHER PROFESSIONALS (TECHNICIAN, PROGRAMMER, ETC.)							
3. () GRADUATE STUDENTS							
4. () UNDERGRADUATE STUDENTS							
5. () SECRETARIAL-CLERICAL							
6. () OTHER							
TOTAL SALARIES AND WAGES (A+B)							
C. FRINGE BENEFITS (IF CHARGED AS DIRECT COSTS)							
TOTAL SALARIES, WAGES AND FRINGE BENEFITS (A+B+C)							
D. PERMANENT EQUIPMENT (LIST ITEM AND DOLLAR AMOUNT FOR EACH ITEM EXCEEDING \$1,000.)							
TOTAL PERMANENT EQUIPMENT							
E. TRAVEL 1. DOMESTIC (INCL. CANADA AND U.S. POSSESSIONS)							
2. FOREIGN							
F. PARTICIPANT SUPPORT COSTS							
1. STIPENDS \$							
2. TRAVEL							
3. SUBSISTENCE							
4. OTHER							
TOTAL PARTICIPANT COSTS							
G. OTHER DIRECT COSTS							
1. MATERIALS AND SUPPLIES							
2. PUBLICATION COSTS/PAGE CHARGES							
3. CONSULTANT SERVICES							
4. COMPUTER (ADPE) SERVICES						9375.00	
5. SUBCONTRACTS							
6. OTHER							
TOTAL OTHER DIRECT COSTS							
H. TOTAL DIRECT COSTS (A THROUGH G)						9375.00	
I. INDIRECT COSTS (SPECIFY)							
TOTAL INDIRECT COSTS							
J. TOTAL DIRECT AND INDIRECT COSTS (H + I)						9375.00	
K. RESIDUAL FUNDS (IF FOR FURTHER SUPPORT OF CURRENT PROJECTS GPM 252 AND 253)							
L. AMOUNT OF THIS REQUEST (J) OR (J MINUS K)						\$ 9375.00	\$
PI/PD TYPED NAME & SIGNATURE*				DATE	FOR NSF USE ONLY		
Herbert L. Dershem				4/27/87	INDIRECT COST RATE VERIFICATION		
INST. REP. TYPED NAME & SIGNATURE*				DATE	Date Checked	Date of Rate Sheet	Initials - DGC
Irwin Brink				4/27/87			
							Program

3 Summary Proposal Budget

	CSNET Annual dues	Communication Service Costs	Total
First Year	\$2625	\$500	\$3125
Second Year	\$2625	\$500	\$3125
Third Year	\$2525	\$500	\$3125
Total	\$7875	\$1500	\$9375

Current and Pending Support for Research and Education in Science and Engineering

The following information should be provided for each investigator and other senior personnel. Failure to provide this information may delay consideration of the proposal.

I. Name of Principal Investigator Herbert L. Dershem	Source of Support	Project Title	Award Amount (or Annual Rate)	Period Covered by Award	Person-Months or % of Effort Committed to the Project			Location of Research
					ACAD.	SUMM.	CAL. YR.	
A. Current Support List—if none, report none	None							
B. Proposals Pending 1. List this proposal	RUI-CISE-Div. of Computer Research - Spec. Proj. Prog.	CSNET in Support of Computer Science Research	\$9375	9/87 to 8/90	0	0	0	Hope College Holland, MI 49423
2. Other pending proposals, including renewal applications. If none, report none.								
3. Proposals planned to be submitted in near future. If none, report none.	None							
II. Name of co-principal investigator and/or faculty associate A. _____ B. _____								
III. Transfer of Support If this project has previously been funded by another agency, please list and furnish information for immediately preceding funding period.								
IV. Other agencies to which this proposal has been/will be submitted								

USE ADDITIONAL SHEETS AS NECESSARY

5 RUI Impact Statement

Hope College is a four year liberal arts college with approximately 2500 students. It is particularly known for its scientific research programs which involve undergraduate students. Typically, 50 students work full time during the summer on research projects directed by faculty of the Natural Sciences Division. Much of the research in the Division receives support from NSF, NIH, and the Research Corporation, as well as other agencies. Over the last three years, an average of over \$650,000 per year was awarded to faculty of the Division.

The Computer Science program at Hope is based on extensive coursework, wide use of computer facilities, and research experience. The Computer Science Department consists of four faculty members, all of whom are active in research involving students. The curriculum requirements encourage students to take advantage of faculty research efforts. For example, in the last year of coursework, each major is expected to participate in the senior project seminar. Students in the seminar complete a major research project, do extensive reading in the literature, and attend lectures and discussions covering a wide range of topics in the field. Over the last five years, an average of 17 students per year have done independent projects under faculty supervision. Over 20% of the department's majors pursue advanced degrees within two years of graduation.

The Computer Science Department has not attracted outside funding for its research in the past due to the heavy teaching loads in the department and the difficulty in attracting faculty active in fundable research. Lower enrollments in Computer Science and the hiring of Dr. Jipping have eliminated these hindrances and the funding of the proposed project will further encourage the development and maintenance of a strong research program in the Hope College Computer Science Department. This will bring in funding that will permit increased student participation in research.

6 Appendix

6.1 Major Equipment in the Hope College Computer Science Department

- Present Equipment
 - NCR Tower 16-user Unix System V computer
 - 19 IBM PC-compatible computer systems
 - 6 Epson printers
 - Connection via terminals to campus wide VAX 11/750 network
- Equipment available to support proposed project (August, 1987)
 - SUN 3/160S-P1 Server
 - 2 SUN 3/50 M-4 Diskless Workstations
 - 1 SUN LaserWriter LW110-02



HOPE COLLEGE

MEMORANDUM

DATE: November 13, 1987

TO: Herb Dershem

FROM: Kevin Kraay *Kevin*

SUBJECT: NSF Grant

The National Science Foundation has awarded you \$9,375.00 in support of the project entitled CSNET Membership in Support of Computer Science Research.

Please be advised that the account number 5-22737 has been assigned to this number. All expenses associated with this grant should use this account number.

Will you please forward to me a copy of the budget for this grant. I will update our records with this information.

Congratulations.

November 10, 1987

Mr. Stephen R. Williams
Grants Officer
National Science Foundation
Washington, D.C. 20550

Re: Grant No. NCR-8715475
Proposal No. NCR-8715475

Dear Mr. Williams:

I am pleased to acknowledge your letter of October 23, 1987 regarding the support for the project under the direction of Herbert L. Dershem entitled:

"RUI: CSNET Membership in Support of Computer Science Research."

We pledge our best efforts to use these resources wisely and in accordance with the terms and conditions set forth previously.

Sincerely,

John Jacobson

JJ:jb

cc: Professor Herbert L. Dershem
Dean Irwin Brink
Mr. Kevin Kraay
Mr. Tom Renner



HOPE COLLEGE

OFFICE OF THE PRESIDENT

November 6, 1987

Professor Herbert L. Dershem
Computer Science Department

Dear Herb:

Congratulations on the award of a grant from the National Science Foundation. Attached to this letter is a copy of the letter we received from the National Science Foundation informing the College of the award.

I know it must be very encouraging to you to receive this award. I would like to express appreciation to you for your efforts in this matter on behalf of the College, and to offer you my personal congratulations.

With all good wishes,

John Jacobson

JJ:jb

cc: Provost Jacob Nyenhuis
Dean Irwin Brink



HOPE COLLEGE

DEAN FOR THE NATURAL AND SOCIAL SCIENCES

November 16, 1987

Dr. Herb Dershem, Chairman
Department of Computer Science
Hope College
Holland, MI 49423

Dear Herb:

Congratulations on receiving the NSF-RUI grant to support CSNET membership in support of computer science research. I am sure this is an important step forward in the development of undergraduate research in the computer science department. I applaud your efforts in preparing the proposal to NSF and rejoice with you in receiving word that your proposal was funded. Keep up the good work.

Sincerely yours,

Irwin J. Brink
Dean for the Natural Sciences

IJB:np/C.tex

NATIONAL SCIENCE FOUNDATION
1800 G STREET, NW
WASHINGTON, DC 20550

BULK RATE
POSTAGE & FEES PAID
National Science Foundation
Permit No. G-69

PI/PD Name and Address

Herbert L. Dershem
Computer Science
Hope College
Holland

MI 49423

NATIONAL SCIENCE FOUNDATION FINAL PROJECT REPORT

PART I - PROJECT IDENTIFICATION INFORMATION

1. Program Official/Org. NAME UNAVAILABLE; ADDRESS TO A/O FOR NCR

2. Program Name CSNET

3. Award Dates (MM/YY) From: 11/87 To: 04/91

4. Institution and Address

Hope College
Holland

MI 49423

5. Award Number 8715475

6. Project Title

RUI: CSNET Membership in Support of Computer Science
Research

This Packet Contains
NSF Form 98A
And 1 Return Envelope

NSF Grant Conditions (Article 17, GC-1, and Article 9, FDP-II) require submission of a Final Project Report (NSF Form 98A) to the NSF program officer no later than 90 days after the expiration of the award. Final Project Reports for expired awards must be received before new awards can be made (NSF Grants Policy Manual Section 677).

Below, or on a separate page, provide a summary of the completed projects and technical information and attach it to this form. Be sure to include your name and award number on each separate page. See below for more instructions.

PART II - SUMMARY OF COMPLETED PROJECT (for public use)

The summary (about 200 words) must be self-contained and intelligible to a scientifically literate reader. Without restating the project title, it should begin with a topic sentence starting the project's major thesis. The summary should include, if pertinent to the project being described, the following items:

- The primary objectives and scope of the project
- The techniques or approaches used only to the degree necessary for comprehension
- The findings and implications stated as concisely and informatively as possible

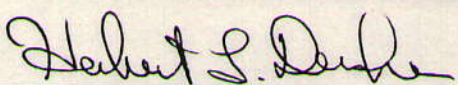
The Computer Science Department of Hope College joined CSNET in 1987 and remained in that membership for two years. In 1989, with the permission of the RUI staff, the department used the remainder of the funds to connect directly to the Internet through the MERIT Computer Network and their connection to NSFNET.

The cost of retaining this membership has now been taken over by Hope College as a continuing budgeted expense.

PART III - TECHNICAL INFORMATION (for program management use)

List references to publications resulting from this award and briefly describe primary data, samples, physical collections, inventions, software, etc. created or gathered in the course of the research and, if appropriate, how they are being made available to the research community.

Our CSNET and subsequent Internet memberships have enabled us to continue to develop our research program. During this period, the department has obtained two NSF ILI grants to enhance its lab facilities, on PEW research grant, conducted 22 undergraduate research projects, and published 4 research papers. In addition, we have two NSF and one U.S. Dept. of Education proposals pending. Although the networks funded through this grant were not directly responsible for this work, the work was greatly facilitated by our ability to communicate through these networks.

	5-30-91
Principal Investigator/Project Director Signature	Date

IMPORTANT: MAILING INSTRUCTIONS

Return this *entire* packet plus all attachments in the envelope attached to the back of this form. Please copy the information from Part I, Block I to the *Attention line* on the envelope.

PART IV — FINAL PROJECT REPORT — SUMMARY DATA ON PROJECT PERSONNEL

(To be submitted to cognizant Program Officer upon completion of project)

The data requested below are important for the development of a statistical profile on the personnel supported by Federal grants. The information on this part is solicited in response to Public Law 99-383 and 42 USC 1885C. All information provided will be treated as confidential and will be safeguarded in accordance with the provisions of the Privacy Act of 1974. You should submit a single copy of this part with each final project report. However, submission of the requested information is not mandatory and is not a precondition of future award(s). Check the "Decline to Provide Information" box below if you do not wish to provide the information.

Please enter the numbers of individuals supported under this grant.
Do not enter information for individuals working less than 40 hours in any calendar year.

	Senior Staff		Post-Doctorals		Graduate Students		Under-Graduates		Other Participants ¹	
	Male	Fem.	Male	Fem.	Male	Fem.	Male	Fem.	Male	Fem.
A. Total, U.S. Citizens										
B. Total, Permanent Residents										
U.S. Citizens or Permanent Residents ² :										
American Indian or Alaskan Native ...										
Asian.....										
Black, Not of Hispanic Origin.....										
Hispanic.....										
Pacific Islander.....										
White, Not of Hispanic Origin.....										
C. Total, Other Non-U.S. Citizens										
Specify Country										
1.										
2.										
3.										
D. Total, All participants (A + B + C)										
Disabled³										

☒ Decline to Provide Information: Check box if you do not wish to provide this information (you are still required to return this page along with Parts I-III).

¹Category includes, for example, college and precollege teachers, conference and workshop participants.

²Use the category that best describes the ethnic/racial status for all U.S. Citizens and Non-citizens with Permanent Residency. (If more than one category applies, use the one category that most closely reflects the person's recognition in the community.)

³A person having a physical or mental impairment that substantially limits one or more major life activities; who has a record of such impairment; or who is regarded as having such impairment. (Disabled individuals also should be counted under the appropriate ethnic/racial group unless they are classified as "Other Non-U.S. Citizens.")

AMERICAN INDIAN OR ALASKAN NATIVE: A person having origins in any of the original peoples of North America, and who maintain cultural identification through tribal affiliation or community recognition.

ASIAN: A person having origins in any of the original peoples of East Asia, Southeast Asia and the Indian subcontinent. This area includes, for example, China, India, Indonesia, Japan, Korea and Vietnam.

BLACK, NOT OF HISPANIC ORIGIN: A person having origins in any of the black racial groups of Africa.

HISPANIC: A person of Mexican, Puerto Rican, Cuban, Central or South American or other Spanish culture or origin, regardless of race.

PACIFIC ISLANDER: A person having origins in any of the original peoples of Hawaii; the U.S. Pacific Territories of Guam, American Samoa, or the Northern Marianas; the U.S. Trust Territory of Palau; the islands of Micronesia or Melanesia; or the Philippines.

WHITE, NOT OF HISPANIC ORIGIN: A person having origins in any of the original peoples of Europe, North Africa, or the Middle East.

THIS PART WILL BE PHYSICALLY SEPARATED FROM THE FINAL PROJECT REPORT AND USED AS A COMPUTER SOURCE DOCUMENT. DO NOT DUPLICATE IT ON THE REVERSE OF ANY OTHER PART OF THE FINAL REPORT.