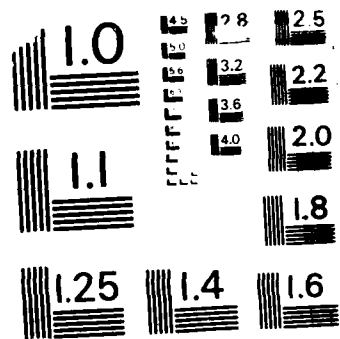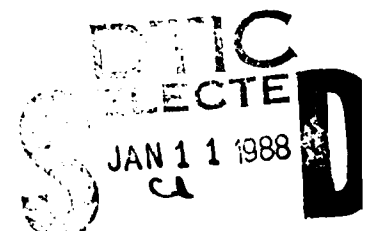MICROCOPY RESOLUTION TEST CHART
NATIONAL BUREAU OF STANDARDS - 1963

8c. ADDRESS (City, State, and ZIP Code)	10 SOURCE OF FUNDING NUMBERS			
Building 410 Bolling AFB, DC 20332-6448	PROGRAM ELEMENT NO 61102F	PROJECT NO 2917	TASK NO A4	WORK UNIT ACCESSION NO

11 TITLE *(Include Security Classification)*

ADAPTIVE NEURAL NETWORK ARCHITECTURE

12 PERSONAL AUTHOR(S)
Andrew Barto

13a TYPE OF REPORT Final	13b TIME COVERED FROM 1 Aug 86 TO 31 Jul 8	14 DATE OF REPORT (Year, Month, Day) 28 Oct 87	15 PAGE COUNT 3

16 SUPPLEMENTARY NOTATION

DOD-URIP

17 COSATI CODES			18 SUBJECT TERMS (Continue on reverse if necessary and identify by block number)
FIELD	GROUP	SUB-GROUP	

19 ABSTRACT *(Continue on reverse if necessary and identify by block number)*

Sun microsystems computer equipment acquired through Grant AFOSR-86-0260 is being used for research directed toward developing learning methods and architectures for artificial neural networks, or connectionist networks. The equipment is being used to simulate artificial neural networks implementing a variety of learning methods, including the Associative Reward-Penalty method and the Adaptive Critic Algorithm, as well as the error backpropoagation method, and various combinations of these learning methods.

20. DISTRIBUTION / AVAILABILITY OF ABSTRACT ☒ UNCLASSIFIED/UNLIMITED ☒ SAME AS RPT ☐ DTIC USERS	21 ABSTRACT SECURITY CLASSIFICATION UNCLASSIFIED
22a. NAME OF RESPONSIBLE INDIVIDUAL William O. Berry	22b TELEPHONE (Include Area Code) (202) 767-5021	22c OFFICE SYMBOL NL

FINAL REPORT

ADAPTIVE NEURAL NETWORK ARCHITECTURE
AFOSR-86-0260
University Research Instrumentation Program

The equipment acquired through Grant AFOSR-86-0260 has been or will be used for research funded through Grant AFOSR-87-0030. This research is directed toward developing learning methods and architectures for artificial neural networks, or connectionist networks. The equipment is being used to simulate artificial neural networks implementing a variety of learning methods, including the Associative Reward-Penalty method and the Adaptive Critic Algorithm that we have developed, as well as the error backpropagation method, and various combinations of these learning methods.

We are applying these learning networks to a variety of tasks, which are also simulated using the equipment. These tasks include learning inverse kinematics for redundant simulated robot arms, learning time-optimal control of a dynamical system, several tasks involving a form of short-term memory, as well as other tasks specialized to test specific aspects of the learning methods.

We are running several network simulation systems on the equipment, including a Common Lisp-based system we have developed. We also use the equipment for document preparation.

FINAL REPORT

ADAPTIVE NEURAL NETWORK ARCHITECTURE
AFOSR-86-0260
University Research Instrumentation Program

Total Grant Amount $76,752.00

Total Cost for Equipment $75,784.69

Total Freight Charges   573.64
                                  —————————
                                  $76,358.33

                                        $ 393.67 BALANCE

	Quantity	Description	Receival or Shipped Date	$$$$
SUN	3	3/50M-4 Desktop Monochrome Workstation	10/29/86	$18,486.00
		152A MC6881 Floating Point Processor	10/29/86	1,638.00
	1	3/160S-8 8MB Fileserver	11/14/86	17,082.00
	1	620A 380 Disk SUNBSYS	11/14/86	13,182.00
	1	650A 60MB ½" tape subsystem	11/14/86	3,120.00
	1	150A Floating Point Accelerator	11/14/86	0.00
	1	SYS3-01 SUN/OPSYS/68020 ½", VS, DOCS	11/14/86	351.00
	2	SYS-09.3.x Release Documentation	11/24/86	390.00
	1	540-1251 VME to MBUS Adaptor S/N 1203	12/10/86	468.00
	1	3/75M-8 8MB Monochrome Workstation	12/21/86	13,182.00
	1	SCLIPS-D-91 S/W & DOCS ½" tape 1st copy	12/23/86	3,500.00
	1	540-1107 Keyboard-Mouse Adaptor	4/22/87	59.50
	1	530-1133 ECL Video Cable	4/22/87	130.00
DIGITAL	1	LNO3S AA Laser Printer	11/14/86	2,747.25
	1	LNO3X-ST LNO3 supplies kit	11/14/86	219.45
	2	LNO3X-CR LNO3 RAM Cartridge	12/5/86	528.24
	1	Delni-AA Local Network Interconnect	2/3/87	701.25
				$75,784.69

END

DATE

FILMED

DTIC

4/88