

ROUTING AND RECORD SHEET

SUBJECT: (Optional) Appreciation for Participation in AI Symposium

FROM: Philip K. Eckman
Chairman, AI Steering Group

NO. **ER 83-6221**

DATE 20 December 1983

25X1

TO: (Officer designation, room number, and building)

DATE
RECEIVED FORWARDED

OFFICER'S INITIALS

COMMENTS (Number each comment to show from whom to whom. Draw a line across column after each comment.)

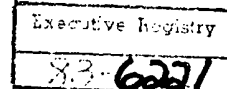
1. ~~Mr. John McMahon~~
~~DDCI~~
~~7E12 Hqs.~~ **ER FILE**

AH. IRFDC 83-7601

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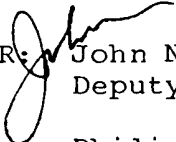
The Director of Central Intelligence

Washington, D.C. 20505



Intelligence Research &
Development Council

20 December 1983

MEMORANDUM FOR:  John N. McMahon
Deputy Director of Central Intelligence

FROM : Philip K. Eckman
Chairman, AI Steering Group

SUBJECT : Appreciation for Participation in AI Symposium

1. On behalf of the Artificial Intelligence Steering Group I would like to express our appreciation for your participation in the recent AI Symposium. Your remarks on the critical needs of the Community for information technology and the role which artificial intelligence may play in that arena were right on target and contributed significantly to the overall success of the Symposium.

2. We were especially gratified by the large turnout (over 600 people) which reflects not only the general level of interest in artificial intelligence but the appeal of our program of speakers as well. Your participation helped establish an atmosphere of realistic requirements and expectations for how AI might be made useful to the Intelligence Community.

3. Thanks again for taking time out of your busy schedule to participate.



Philip K. Eckman

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IR&DC 83-7601
18 November 1983

MEMORANDUM FOR: [redacted]
Executive Assistant to the DDCI

25X1

FROM: [redacted]
Executive Secretary, IR&DC

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SUBJECT: Draft DDCI Remarks

[redacted]

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1. Attached as we discussed, please find a package with a draft outline for the DDCI to use in his remarks before the Artificial Intelligence (AI) Symposium at 1000 hours on 8 December in the Headquarters Auditorium. The audience will be composed of intelligence personnel, other governmental attendees, and representatives from industry and academia. This is why the proposed remarks have been drafted at the unclassified level.

2. Dick DeLauer, in the film that he has prepared, welcomes the attendees and indicates that he has high hopes that the use of AI in the future will be of great help in Defense activities. He points out that AI will be used for making sense out of the expanded flow of information which, in the future, will be available to all levels of Defense personnel from weapon platform operators to higher level decisionmakers. He notes a similar expansion of information availability will have to be coped with by the Intelligence Community. He closes by asking the attendees to use this symposium to express their thoughts on the future of AI within the Intelligence Community and asks them to make appropriate recommendations in their organizations where they believe leverage may be obtained by the use of this technology. Dick speaks for about five minutes.

3. The attached package has three sections. The first contains the proposed remarks for the DDCI, the second has a draft outline of the symposium proceedings, and the third has the outline which Dick DeLauer used in making the film. Please call if you need more.

[redacted]

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Attachments:

- Tab A. Draft DDCI Remarks
- Tab B. Draft Symposium Proceedings
- Tab C. USDRE Remarks Outline



B-239A

SUBJECT: Draft DDCI Remarks

Distribution:

- 1 - EA/DDCI
- 1 - Executive Registry
- 1 - ES/IR&DC
- 1 - Secretariat Staff Registry
- 1 - ICS Registry

ES/IR&DC/



(18 Nov 83)

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ADDRESS
to the
SECOND ANNUAL SYMPOSIUM
on
AI APPLICATIONS
in the
INTELLIGENCE COMMUNITY

Hon. John N. McMahon

8 December 1983
1000 Hours

CIA Headquarters Auditorium

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BACKGROUND

The "Second Annual Symposium on Artificial Intelligence Applications in the Intelligence Community" is intended to provide a forum for exchanging ideas and information concerning where and how the technology of artificial intelligence (AI) can be applied to problems within the Intelligence Community (IC). AI is a multi-disciplinary field of endeavor concerned with building smarter information systems, i.e., systems which exhibit behavior which, in humans, is generally referred to as "intelligent." This includes such attributes as understanding natural language (either typed or spoken), identifying objects in a visual scene (such as via live television or digital imagery), reasoning about data to achieve some goal or purpose (as in making deductive or inductive inferences from data streams), and planning and executing courses of action (as with a robot or in operating a remote piece of equipment).

As a field of study, artificial intelligence has been around for more than 25 years--largely under DARPA and ONR support. Recent successes in commercial and government applications when coupled with significant advances in low cost computing hardware have sparked world-wide interest in harvesting some of the benefits of these 25 years of work. The question is: which technology is ready and how do we go about transferring it into our line of work?

This Symposium is one step toward achieving that technology transfer. During the 3 days we will bring together Government scientists, analysts, and resource planners with university researchers, government contractors, system implementors, and vendors to educate one another on where the technology is headed, what capabilities are available now, and what features are needed for such systems to be truly useful.

A similar symposium was held last year for 300 CIA intelligence analysts. This year's symposium has been expanded to include the entire Intelligence Community and is being sponsored by the Artificial Intelligence Steering Group of the Intelligence R&D Council. Over 500 people are expected to attend. The Agency auditorium sessions will include both classified and unclassified presentations. These talks will be supplemented by videotapes and live demonstrations of working AI systems.

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OUTLINE

- INTRODUCTION

- THE INTELLIGENCE PROBLEM

- HOW AI MIGHT HELP

- WHAT WE ARE CURRENTLY DOING WITH AI

- CONCLUSION

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INTRODUCTION

1. Greetings

- . As the Deputy Director of Central Intelligence it is my pleasure to address you today at this Second Annual Symposium on Artificial Intelligence Applications in the Intelligence Community.
- . As one who has devoted his career to matters of intelligence I never thought I would see the day where I could proudly announce that we are actively pursuing the creation of artificial intelligence:
 - But I have been assured that the business of "artificial intelligence" is not the generation of "disinformation" designed to confuse or mislead anyone.
 - Rather, "artificial intelligence" is the development and application of certain tools and techniques which are aimed at raising the level of intelligent behavior on the part of the information processing tools we use.
 - In the Intelligence Community we are trying to apply artificial intelligence to improve the quality of our intelligence product and the productivity of our intelligence analysts.

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2. The primary purpose of this Symposium has been to educate one another about AI and its uses in the business of Intelligence. As analysts and managers, vendors and customers, we should all be asking ourselves
- . What do we actually mean by the term "artificial intelligence"?
 - . What AI tools and techniques are available now that we might put to use right away?
 - . What tools does the Community need to improve the efficiency and effectiveness of our intelligence activities?
 - . Where does current AI technology fall short in meeting those needs and what might be done to fill the gaps?
 - . What are ripe applications for this technology, what are reasonable expectations for success, and what are realistic estimates of the resources required to proceed?

To the extent we can begin a continuing dialogue of answering these questions this Symposium will be viewed as a success.

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THE INTELLIGENCE PROBLEM

1. The U.S. Foreign Intelligence Program has the dual task of (1) providing to the President and the National Security Council the necessary information on which to base decisions concerning the development and conduct of foreign, defense, and economic policy and (2) the protection of U.S. national interests from foreign security threats.
 - . In effect, we are tasked with keeping track of everything that's going on throughout the world that might be of interest some day to some decision-maker in the Government. And further, we are tasked with presenting that information in a form that is readily understandable by our customers and useful in supporting their decisions.
 - . Of course, in today's complex and changing world (and with limited resources) this task is clearly impossible--and so we do the best that we can to:
 - Prioritize our collection efforts,
 - Avoid unnecessary duplication, and
 - Improve the quality of analysis to produce better intelligence and not just more information

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2. To meet this obligation we must collect a broad range of information from a variety of sources.
 - . As a Group, the U.S. Intelligence Agencies are concerned with information in almost every conceivable form. For example,
 - Printed data in the form of documents, tables, messages, and reports
 - Spoken words as in foreign broadcasts
 - Pictures, for example: photographs, drawings, or maps
 - And a variety of signals from today's panoply of electronic equipment
 - . This information involves a huge array of topics concerning
 - Military Actions - Science & Technology
 - Economics - Geography
 - Politics - And almost any subject you can name
 - . To this data we apply a host of expertise in a multitude of disciplines and from a variety of points of view to produce meaningful and well founded intelligence
 - . Occasionally, some of this information conflicts with or contradicts other information we receive
 - Thus, it is also important that we be able to maintain an audit trail of what information we got from where and to keep statistics on the reliability of various sources

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3. There are several aspects of this intelligence business which have been of concern for quite some time
- . Obviously, we must deal with tremendous volumes of data--both in terms of current collection as well as archival storage
 - We need help in reducing the volume of data which must be transmitted from the source
 - We need help for the analyst doing retrospective searches through vast quantities of potentially relevant data to discover patterns or to glean out the few really important facts
 - We need methods for developing more sophisticated processing techniques to improve upon time consuming brute force trial and error methods
 - . Furthermore, we must pull together data from a variety of sources, in a variety of forms, and at various levels of credibility and accuracy to produce meaningful analyses
 - We need better methods for fusing data and relating seemingly unrelated facts
 - And we need better techniques for presenting these relationships and facts to the analyst or to the policy-maker in a form which can assist the decision-making process and not inundate them with so much data that they cannot read it all.

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- We also need to develop better ways of keeping track of facts used in an analysis so we can support our arguments or know which analyses would be impacted by some sudden change of events

We must work to preserve the expertise we have developed over many years in this business to make it available to the next generations of intelligence analysts in a form they can use and build upon.

- As the last of the OSS Veterans move through the Community, a tremendous wealth of knowledge goes along with them. And when they are gone, so is their expertise.
- We need to build more knowledgeable systems which in some sense understand the data they are processing-- that is, systems which can react to new data streams caused by changes in the world around them
- We also need systems which are more sophisticated yet easier to use, systems which are in some sense transparent and which can explain to the end user what they are doing with his or her data and why.

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HOW AI MIGHT HELP

1. It is my hope that one outcome of this Symposium will be a better understanding for all of us on how AI might help in the intelligence business.
 - . What is doable and what is not?
 - . Where should we start?
 - . How long must we wait for results?
 - . How much will it cost?
 - . Will it really be worthwhile?

2. There are many areas where we think AI might prove useful to intelligence. To name a few:
 - . On-board reduction of sensor data before it is sent on for analysis
 - . Speaker recognition to identify broadcasts of primary interest
 - . Automatic routing of message traffic based on the content of the message and not just on selected key words
 - . Machine-assisted translation of foreign language text
 - . Routine object counting or change detection in digital imagery

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- . Complex analyses to determine valid indications and warnings of impending hostile acts
 - . Determining and tracking terrorist groups and activities
 - . Expert analyses of resource production, industrial output, economic indicators, or even medical diagnoses of foreign personalities
 - . Recognition and classification of electronic signals
 - . Remote diagnosis of system malfunctions in collectors, computers, or communication networks
3. Undoubtedly, some of these potential applications will be more difficult to develop than others. Our hope is that this Symposium can shed some light on which areas will be more likely to pay off and how we can steer developments in the right direction to meet our needs.

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WHAT ARE WE CURRENTLY DOING WITH AI

1. The Intelligence Community has been monitoring developments in Artificial Intelligence for the last 10 or more years.
 - . While we have not had the impact of DARPA in steering AI developments, we have conducted several experimental application efforts with various pieces of the technology
 - . At present several AI application R&D projects are underway in
 - Image Understanding
 - Signals Analysis
 - Text Retrieval
 - Intelligent Data Bases
 - Map Understanding
 - User Interface Enhancement
 - . Interest in reaping some benefits from AI is growing rapidly and the DCI Budget Guidance for FY85 specifically mentions artificial intelligence. As a result, individual Agency 1985 budgets are beginning to show more substantial allotments for AI applications of significant size and complexity

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2. In addition to the various application projects, several AI-oriented committees have been formed within the Community over the past year to help us develop appropriate strategies for coping with this technology
 - . The AI Steering Group under the Intelligence R&D Council was formed in February of 1983 to provide a Community-wide forum for these matters. This Group, of course, is sponsoring this Symposium in an attempt to create such a forum
 - . Several intra-agency committees, working groups, or program offices have been formed to identify suitable agency-specific applications and technology transfer activities
 - CIA
 - DIA
 - NSA
 - Plus several Defense efforts and laboratories, focusing primarily on military applications
 - . The EXRAND committee on imagery exploitation has conducted a study over the last two years of possible uses for AI in the imagery business. Their most recent report has just been published and may be of interest to you.

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3. In the area of training, the AI Steering Group and EXRAND (jointly with the CIA's Information Science Center) are developing a Community-wide program for a series of courses in artificial intelligence as applied to the intelligence business.
- . The first course will be a one-day Executive Seminar in "What is AI and How to Plan for It" to be offered several times over the next few months
 - . A second course detailing the process of application selection will follow in the Spring
 - . Later courses in AI programming tools and techniques are also planned, together with an upgrade of computing facilities at the Information Science Center to support the training
 - . This approach is intended to produce a Community-wide resource to help us cope with the projected shortage of trained AI personnel in the decade ahead--a shortage which I suspect each of your companies or agencies is experiencing right now.

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4. With regard to where the people will come from to build and maintain our AI systems, let me point out a disturbing situation that has developed over the last decade
- . The Intelligence Community now has the most sophisticated information collection mechanism in the world
 - But to support all our various collection activities we have had to convert many of our people from intelligence analysts into big-system collection-oriented folk
 - . At the same time, we have provided substantial data processing tools to the people remaining in intelligence production
 - But these tools typically are difficult to use and require heavy amounts of data processing training which means time taken away from their primary mission: analyzing and producing intelligence
 - . As the rest of the country moves forward into becoming a "knowledge society" (and by the way, let me point out that the Intelligence Community has always been a knowledge society) we are beginning to see a mass awareness of the need to raise the per capita investment in tools to support the "knowledge worker"
 - But we are already faced with a confusing assortment of incompatible office automation and information processing tools available on the market, and it's getting worse

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- . The end result is what is rapidly becoming a critical national shortage of analysts to meet the growing demand for more complex and complete intelligence analysis.
 - Analysts who can perform analysis and not just data processors
 - . Let me pose two questions for you to consider during the remainder of this Symposium, and beyond:
 - (1) As we move toward implementing "artificially intelligent" systems (both in collection and in production) will we really be able to substantially improve our ability to produce usable intelligence?-- and how will we measure this improvement if it comes?
- And (2) To achieve these systems will it be more effective for us, as we have in the past, to train intelligence people in the computer business or to compete for and try to hire computer people and train them in the business of intelligence?

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CONCLUSION

1. In these past few moments I have tried to identify for you where I see that the challenges lie for artificial intelligence.
 - . We constantly are seeking ways to improve the productivity of our personnel and the quality and timeliness of our intelligence product
 - . The world is racing ahead, growing more complex each day, with new technologies, new strategies, and new alliances
 - . With limited resources, the Intelligence Community must meet an awesome task--to monitor and make sense of what is going on around the world, both in front of and behind the scenes
 - . To the extent that you can help, through artificial intelligence or not, your efforts will be greatly appreciated by the President and by the American Public.

~~SECRET~~

PRELIMINARY ANNOUNCEMENT
AI SYMPOSIUM
INTELLIGENCE APPLICATIONS OF ADVANCED
COMPUTER AND INFORMATION TECHNOLOGY:
FOCUS ON
ARTIFICIAL INTELLIGENCE
DECEMBER 6, 7, 8, 1983, WASHINGTON, D. C.
Sponsored By: U.S. INTELLIGENCE COMMUNITY

The United States research and development community is making significant progress toward developing a technology of intelligent machines for collecting data and producing and processing information. In this Symposium, nationally recognized computer scientists, information technologists and research managers will present the state-of-the-art in Artificial Intelligence R & D as related to intelligence applications. The objective of the Symposium is to spawn ideas for new approaches to difficult technical problems faced by the intelligence community . . . to identify and quantify some of the bottlenecks in intelligence collection, processing and interpretation which AI can address.

Symposium Co-ordinator: SMART SYSTEMS TECHNOLOGY, INC., McLean Virginia
Specializing in Artificial Intelligence Implementation and Training

'DRAFT'

Program - First Day, Morning Session, Tuesday, December 6, 1983

Session Moderator: DIA

[Redacted]
 Chief- Development & Implementation Division
 JSW-2
 Washington, D. C. 20391
 202-695-1998

25X1

8:30 [Redacted]
 AI Program Manager
 Office of Research & Development
 Central Intelligence Agency
 202-351-2701

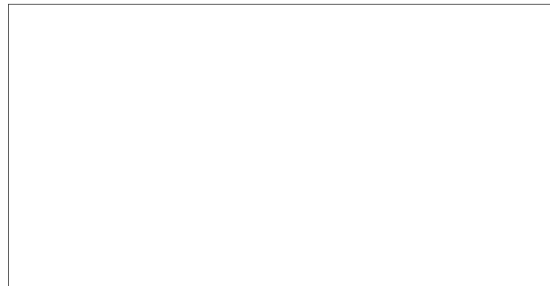
~~Overview of AI Programs in the Intelligence~~
Community Symposium Objectives

25X1

~~9:00~~ **DR. RICHARD D. DELAVER**
~~Mr. John W. McMahon~~
~~Deputy Director of Central Intelligence~~
~~Central Intelligence Agency~~
~~Washington, D. C. 20505~~
~~202-351-6464~~

USDAE
~~Welcoming Remarks~~

9:20



Overview of Artificial Intelligence Research

25X1

10:00 Coffee Break

10:15 [Redacted] MIT

Overview of AI Applications

25X1

11:10 Industry Panel: Xerox, Apollo, Symbolics, DEC

Descriptions and Schedule of AI Demonstration

Program Note: Several computer manufactures have made AI processors available during the three days of this conference for live demonstrations of AI tutorial programs and working AI systems. These will be available during the mid-day breaks and following the afternoon sessions in the Tunnel adjacent to the Auditorium. Schedules of these demos are posted in the Auditorium Lobby. Additional demos may be scheduled by arrangement with the manufacturers' representatives.

12:00 Lunch Break - System Demos in Auditorium Tunnel

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(DRAFT)

Program - First Day, Afternoon Session, Tuesday, December 6, 1983

Session Moderator:

[Redacted]

25X1

Vice Dean
Defense Intelligence College
Washington, D. C. 20374
202-433-2946

1:30

[Redacted]

Director
Center for Automation Research

Overview of AI Applica-
tions to Image and Signal
Understanding

25X1

[Redacted]

25X1

2:30

Coffee Break

2:45

[Redacted]

Professor of Computer Science

Overview of AI Applica-
tions in Robotics and
Speech Understanding

25X1

[Redacted]

25X1

3:45

Panelists:

[Redacted]

Current Trends in AI
Research

25X1

4:15

End First Day Program - System Demos in Auditorium Tunnel

(DRAFT)

Program - Second Day, Morning Session, Wednesday, December 7, 1983

Session Moderator:

25X1

8:30	Mr. David Y. McManis National Intelligence Officer/ Warning Central Intelligence Agency Washington, D. C. 20505 202-351-7301	Intelligence Requirements	
9:15	<input type="text"/> Professor of Math-MIT <input type="text"/>	Speculations on the Effect of the Computer on Scientists	25X1 25X1
10:00	Coffee Break		
10:15	Dr. James Slagle CODE 7510 Naval Research Laboratory Washington, D. C. 20375 202-767-2669	"BATTLE" Resource Alloca- tion Project: Expert Advisor for Weapons Allo- cation.	
10:45	<input type="text"/> Engineering Staff Specialist General Dynamics Electronics Division P.O. Box 85310 San Diego, California 92138 619-573-7504	Expert Advisor for Fault Diagnosis and Repair of Complex Systems (tentative)	25X1
11:15	<input type="text"/> Senior Computer Scientist Advanced Information and Decision Systems 201 San Antonio Circle Suite 286 Mountain View, CA. 94040 415-941-3912	Computer-Based Assistant for Science and Technology Analysis	25X1
11:45	Lunch Break - System Demos in Auditorium Tunnel		

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Program - Second Day, Afternoon Session, Wednesday, December 7, 1983

Session Moderator:

[redacted]
 Image Scientist Research
 Office of Research and Development
 Central Intelligence Agency
 Washington, D. C. 20505
 202-351-2957

25X1

-
- | | | | |
|------|---|--|------|
| 1:30 | [redacted]
Program Manager
Hughes Aircraft Company
P.O. Box 902
El Segundo, California 90245
213-616-2129 | Image Understanding Project | 25X1 |
| 2:00 | [redacted]
Science Applications, Inc.
51 East Broadway
Suite 1100
Tucson, Arizona 85711-3796
(602) 748-4800 | AI Applications in SAR
Image Interpretation
(tentative) | 25X1 |
| 2:30 | Coffee Break | | |
| 2:45 | [redacted]
Senior Staff Engineer
TRW Defense Systems Group
1 Space Park
Bldg. 90 - Room 2824
Redondo Beach, California 90278
213-535-0312 | An Operational Artificial
Field Engineer for Tuning A
Signal Sorter--The User's
Viewpoint | 25X1 |
| 3:15 | [redacted]
EH/RNAD/DPG/NPIC
Central Intelligence Agency
Washington, D. C. 20505
202-863-3201 or 3202 | AI Applications in Image
Analysis | 25X1 |
| 3:45 | End Second Day Program - System Demos in Auditorium Tunnel | | |

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Program - Third Day, Morning Session, Thursday, December 8, 1983

Session Moderator:

[Redacted]
Chief, Techniques Staff
National Security Agency
ATTN: T-303
9800 Savage Road
Ft. George G. Meade, MD 20755
[Redacted]

25X1

25X1

8:30

[Redacted]
Director, Information Processing
Techniques Office-DARPA
1400 Wilson Boulevard
Arlington, VA 22209
202-694-5922

DARPA Strategic Computing
Program

25X1

9:15

[Redacted]

Japan's Fifth-Generation
Computing Project: Objec-
tives, Status and Prospects

25X1

10:00

~~Coffee Break~~ *MR. JOHN N. McMAHON*

DDCI

10:45
10:30
10:15

Coffee Break
Panel: What Are the Problems and Requirements for Starting
and Maintaining a Government AI Facility?

Program Note: The panelists will discuss some of the practical
considerations in getting started in AI: se-
lecting among alternative computing facilities,
recruitment and training of AI personnel, cri-
teria for selecting R & D projects, and insti-
tutional issues including mission, management,
and support.

Panelists:

Dr. Robert Leighty, Director, Research Institute
U. S. Army Engineer Topographic Laboratory, Ft. Belvoir, VA
22060 - 703-664-2422

Dr. James S. Albus, Chief, Industrial Systems Division
National Bureau of Standards, Bldg. 220, Room A123, Wash.,
D. C. 20234 - 202-921-2381

[Redacted] Image Research Scientist
Office of Research and Development, Washington, D. C.,
20505 - [Redacted]

25X1

25X1

Dr. Jude E. Franklin, Manager, Navy Center for Applied Research
in Artificial Intelligence, (CODE 7510), Washington, D. C.
20375 - 202-767-2884

Dr. Northrup Fowler, III, RADC/COES
Griffiss AFB, New York, 13441 - 315-330-2748

12:00 Lunch Break - System Demos in Auditorium Tunnel

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6

Program - Third Day Afternoon Session, Thursday, December 8, 1983

Session Moderator:

[REDACTED]
 AI Program Manager
 Office of Research and Development
 Central Intelligence Agency
 Washington, D. C. 20505
 202-351-2701

25X1

1:30 Industry Panel: Why is Private Industry Investing in AI for
 Commercial Applications?

25X1

[REDACTED]
 [REDACTED]

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TRW, Defense Systems Group, One Space Park, Redondo Beach,
 CA 90276 - [REDACTED]

25X1

[REDACTED], DEC , .77 Reed Road, (HLO 2-3/N)
 Hudson, MASS 01749 [REDACTED] (tentative)

25X1

[REDACTED]

25X1

Westinghouse Productivity & Quality Center, P.O. Box 160,
 Pittsburgh, PA 15230 - [REDACTED]

25X1

[REDACTED] Staff Computer Scientist

25X1

Shell Development Company, P.O. Box 481, Houston, TX 77001,
 [REDACTED]

25X1

[REDACTED] Senior Member, Technical Staff

25X1

Computer Science Laboratory, Central Research Laboratories,
 Texas Instruments, Inc., P.O. Box 226015, MS 238, Dallas,
 TX 75266 - [REDACTED]

25X1

2:30 Coffee Break

2:45 Panel Continues

3:15

[REDACTED]

Current and Future Intel-
 ligence Community Acti-
 vities in AI

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4:00 End Third Day Program

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ADDRESS
to the
SECOND ANNUAL SYMPOSIUM
on
AI APPLICATIONS
in the
INTELLIGENCE COMMUNITY

Hon. Richard D. DeLauer
6-8 December 1983
CIA Headquarters Auditorium

UNCLASSIFIED

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BACKGROUND

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OUTLINE

- INTRODUCTION

- OUR INTEREST IN AI

- DoD AI ACTIVITIES

- THE AI CHALLENGE

- CONCLUSION

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INTRODUCTION

1. Dick DeLauer

- . USDR&E
 - Research and Acquisition of Major Weapons Systems
- . Chairman, IR&DC
 - Principal Science and Technology Leaders from the Various Components of the Intelligence Community

2. Artificial Intelligence Steering Group

- . Subcommittee under IR&DC
- . Established February 1983
- . Chaired by Dr. Philip Eckman, Director of Research and Development at the CIA
- . Purpose is to Provide a Central Focus within the Intelligence Community for Artificial Intelligence R&D and Applications
 - Monitor AI research activities
 - Evaluate Intelligence Community requirements for AI
 - Review and develop Community AI systems and tools
 - Recommend strategies for transferring AI technology out of the laboratory and into the Community

(More...)

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- . A principal activity of the Group is information exchange about AI
 - What's going on?
 - Who's doing what?
 - What does or doesn't work?
- . One mechanism for achieving this exchange is the Annual AI Symposium, a forum for exchange among AI researchers, system developers, vendors, academicians, contractors, and potential end users of AI technology

3. Welcome

- As the Chairman of the IR&DC I would like to welcome you to this Symposium and describe to you briefly why I am enthusiastic about the potential for using Artificial Intelligence technology in the Department of Defense and the Intelligence Community

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AI INTEREST

1. The Department of Defense has many challenges ahead as the complexity of modern warfare grows

. Increasing reliance on computers and information systems to support

- Troops
- Commanders
- Support Activities
- Mission Planners
- Resource Managers
- Strategists

. Three problem areas are of primary interest in DoD

- Increasingly sophisticated weapons systems capable of carrying out their mission with a minimum of operator intervention
- Speed of response to solve increasingly complex problems in time to make a difference
- Fusion of information from a variety of sources in such a way as to help, not hinder, the decision-maker

These latter two we share closely with the Intelligence Community

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- . The answer to all of these problems seems to be not just more and faster computing, but "smarter" computing. That is
 - Raising the level of human/computer communications
 - Relegating more and more routine intellectual tasks to machines
 - Providing computers with a greater ability to "understand" the data they are processing through a deeper knowledge of the particular application domain

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2. Artificial Intelligence, inasmuch as it attempts to address these kinds of issues, is of great interest to the Department of Defense.
 - . AI as a field of study has been around for over 25 years, and Defense has throughout that period continued to be a strong proponent and a major funder of AI R&D
 - DARPA
 - ONR
 - . Periodically there have been swings of enthusiasm over practical applications of AI technology to Defense problems
 - This time the level of interest has spread throughout the Government and to Private Industry as well
 - . Each time in the past our expectations have always exceeded our ability to produce an "intelligent system"
 - And yet, many useful tools and technology have resulted from basic AI research originally supported by Defense
 - * Time Sharing Systems
 - * Complex Data Structures
 - * Word Processing
 - * Even Video Games!
 - . Each time, however, we also get a little wiser in learning to temper our expectations and to channel our enthusiasm into more realistic endeavors.

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- . Over the years we have witnessed an interesting phenomenon occur
 - When an "AI problem" gets solved we tend to no longer call it AI!
 - This has occurred so often that AI researchers have come to expect it
 - But now those of us looking for real world applications of AI should also be prepared to accept this phenomenon
 - * The magical term "Artificial Intelligence" may only apply to those systems which we don't know quite how to build, yet
 - * Once we discover, through AI, the solution to a problem, we may all tend to call it just "clever computer programming"
 - However, let us not lose sight of how these clever programs were developed in the first place nor should we be deterred from our pursuit of increasingly smarter systems, systems which today still require some form of "artificial intelligence"

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DoD AI ACTIVITIES

1. Defense pursuit of artificial intelligence is following several pathways at once
 - . DARPA will continue to fund AI research and development through the newly-formed "Supercomputation" program which will provide \$600 million over the next 5 years to produce incredibly powerful machines with built-in AI capabilities
 - . Defense laboratories such as NRL and RADC will continue to grow in their ability to apply AI technology to Defense-related problems and to push the state of the art
 - . And individual applications in the Services themselves will continue to explore the practicality of applied AI systems. For example,
 - Smarter Weapons Systems
 - * Autonomous Homing Vehicles
 - * Naval Flight Simulators
 - * Cockpit Heads Up Displays
 - Intelligent C³I Systems
 - * Battlefield Fire Control
 - * Indications and Warning
 - * Tactical Fusion

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- **Knowledgeable Logistics Support Systems**

- * **Ordnance**
- * **Troop Movement and Transportation**
- * **Battlefield Supply**

Each of these examples (and there are many others) are broad areas where even slightly smarter systems could help improve the efficiency and effectiveness of our national defense.

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THE AI CHALLENGE

1. My purpose today is to impart to you my strong sense of support for the goals and pursuits of artificial intelligence.

. As we look to defending our country in the decades ahead we see

- Increasingly huge volumes of data
- Concerning more and more complex weapons and situations
- Which must be processed in ever-shortening periods of time

. This situation offers a significant challenge to you, the designers, implementors, and users of our next generations of computers and information systems

- How can we build systems which are

- * Fast Enough
- * Reliable Enough
- * Secure Enough
- * And Smart Enough

to meet this need at a reasonable cost?

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2. With the Supercomputation effort we are launching a program of considerable magnitude to leverage the research and development currently underway in the universities and in industry

- . A program which we hope will make a difference
- . A program which will provide the tools for building systems to meet our information needs in the 90's and beyond
- . A program which will ensure continued U.S. supremacy in the knowledge processing business.

3. My challenge to you, each of you,

- . Scientists
- . Managers
- . Contractors
- . Users

is to take a careful look at this technology called AI to determine what there is that can be of use now and what areas need further work before they can be truly useful.

4. The task is arduous (and I don't issue the challenge lightly) but the payoff can be large and indeed vital to the success of our national security effort.

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CONCLUSION

1. This Symposium is one mechanism for beginning to understand how AI can be applied to Defense and Intelligence matters
 - . But the Symposium itself is not the end result--it is just the beginning of what I hope will be a continuing series of spin-off activities and follow-up discussions
 - Within the Government
 - And among Government personnel, contractors, and academia
2. Good luck, and I hope you find this conference a stimulating, informative, and challenging 3 days.

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