

## AAAI Business

### National Conference honors Alexander Lerner's 70th Birthday

A special session entitled "Future Directions In Artificial Intelligence" was held at the National Conference on Artificial Intelligence in Washington, D.C. in August. The session, chaired by Jack Minker, was held to honor Soviet cyberneticist Alexander Yankelovich Lerner's seventieth birthday. Minker described Dr. Lerner's contributions to science. Participants Saul Amarel, Nils Nilsson, John McCarthy and Patrick Winston gave a technical presentation, followed by questions from the audience.

Following the session, 228 attendees signed a letter wishing Dr. Lerner a happy birthday, and 233 attendees signed a petition to be sent to Yuri Andropov of the Soviet Union requesting that Dr. Lerner be given permission to emigrate so that he may join his daughter and her family in Israel.

On September 7, 1983, Lerner requested that the following statement appear in *AI Magazine*:

Professor Minker of the University of Maryland phoned me on my 70th birthday to tell me that 228 scientists at the American Association on Artificial Intelligence signed a letter wishing me a happy birthday. Professor Minker also told me that a special session on the subject of "Future Directions in Artificial Intelligence" was held to honor my birthday. I am so touched by this kind expression of scientists to honor my contributions to science. I wish to send my appreciation to Professors Saul Amarel, Nils Nilsson, John McCarthy, Jack Minker, and Patrick Winston for participating in the special session. I send my warmest greetings to all those who wished me a Happy Birthday. I am grateful to Professor Minker for organizing the session in my honor and to the organizing and local arrangements committee for their assistance with the arrangements for the special session

Yours sincerely,  
Alexander Yaneklovich Lerner  
September 7, 1983

### Alexander Lerner: A Biographical Sketch\*

Soviet scientist Alexander Yankelovich Lerner is internationally renowned for his work in the area of cybernetics, the science of control and communication in mechanisms, organisms and society.

Lerner was born in the city of Vinitsa in the Ukraine. His first scientific publication appeared in 1935 when he was a fourth year science student and was based on a new

principle for constructing electrical drives. He was awarded a diploma as an electrical engineer in 1936.

In 1939, he defended a thesis on a new method of calculating transitory processes for systems of asynchronous electrical drives. He was awarded the title *Candidate of Technical Sciences* by the Moscow Institute of Energetics, where he worked as a lecturer until the USSR entered World War II. He was then commissioned to work at an iron and steel plant, setting up and starting American and Soviet automatic equipment. The two years of practical work at the plant led to his book *Construction of Industrial Automatic Electrical Drives*, published in 1950, together with E.A. Rosenman. After the war he was appointed head of the USSR's newly established Central Automation Laboratory in Moscow.

In 1954 Lerner was awarded the title *Doctor of Technical Sciences* for his work on the theory of optimal controls. This research was published in his book *Principles of the Construction of Fast-Acting Tracking Systems and Regulators*, which introduced the notion of isochrona and the proof of certain theories of isochronal properties.

In 1958 Lerner received an Honorary diploma at the World Exhibition in Brussels for his work on the theory and practice of self-adjusting systems. His book, *Introduction to the Theory of Automatic Controls*, published in 1958, became a standard textbook in this field. In 1960, he honorarily received the prestigious title, *Professor*.

In the late 1960s Lerner's work revolved around the theory of large scale systems. This new direction in the theory of control evolved with the development of computers and the possibility of using computers to find solutions to problems of control. He is also responsible for initiating and developing the theory of *active systems*, including the principle of "fair play", which has been very effective in solving problems of control.

In 1968 Lerner published *Fundamentals of Cybernetics* covering topics of interest to artificial intelligence such as the *minimax* method of game playing, learning machines, pattern recognition, brain theory, self-organizing systems and aspects of the theory of automata. At the same time, Lerner conducted and led research on the theory and application of optimal control methods. As a result, new effective methods of optimal heating of metals were found.

Until 1971 Lerner held prominent positions in the Soviet scientific community. He headed the Section of Theory of Controlling Large Systems at the Institute of Control Problems of the Academy of Sciences of the USSR; he served as Professor at the Moscow Institute for Physics and Technology; he was a member of the editorial boards of the Great Soviet Encyclopedia and the magazines *Automatics and Telemechanics* and *Machine Construction*. He held the honorary titles *Member of the Council on Cybernetics* at

\*From an address delivered at the AAAI Conference in Washington, D.C., August, 1983, by Jack Minker, of the University of Maryland

the Presidium of the Academy of Sciences of the USSR and *Deputy Chairman* of one of the committees of the International Federation on Automatic Control [IFAC].

Lerner is the author of 200 scientific works and inventions, including 12 books, translated into many languages. He is the recipient of a number of awards given to him by the Soviet government. He received the *Sign of Merit* in April 1971. His scientific career was seriously curtailed in 1972 when he applied for an exit visa to emigrate to Israel. Because of this, Soviet authorities dismissed him from all positions he held and caused him to be expelled from all elective bodies on which he served. He was denied an exit visa at that time, and his request for an exit visa is still being denied.

During the past 11 years of being denied access to the scientific community in the USSR Lerner has continued insofar as possible, his scientific work, and has been publishing scientific papers outside of the Soviet Union. Until recently,

he has attempted to keep up his scientific work by holding a regular seminar series with lectures by distinguished scientists at his home. This weekly seminar series, devoted mainly to the use of mathematical methods in medicine and biology, and aiming at creating an artificial heart, has been now terminated, however, due to threats from the KGB.

Aside from the curtailment of his professional work, Lerner has had more than his share of personal tragedies. During World War II his two daughters were murdered when the city in the Ukraine in which they were staying was overrun by the Nazis. His in-laws and many other relatives of his wife were also murdered by the Nazis. Merely because he was a Jew, he was fired from his position at the Institute of Control Problems during the Stalin era. He was rehired only after Stalin's death in 1953.

In spite of these hardships, Alexander Lerner remains optimistic and plans to continue his scientific work.

**NASA-AMES RESEARCH CENTER  
MOFFETT FIELD, CA 94035**

**EXPERT SYSTEMS INVESTIGATOR**

Ames Research Center (35 miles south of San Francisco) is seeking a senior investigator for the development of generic software tools and computer architectures applicable to image-based expert systems. The research areas include knowledge representation, system control (rule interpreter), symbolic representation languages, and information extraction (pattern recognition). Poorly understood issues include the impact of the space environment on software and hardware architectures including reliability (fault-tolerance) for image-based expert systems; portability of languages between vonNeumann and non-vonNeumann systems and ease of user interface; and ability of the crew to interact, understand, and diagnose failures for spaceborne expert systems. Responsibilities will include (1) directing and participating in basic artificial intelligence (AI) research for the development of new hardware and software technologies for image-based expert systems within the constraints of the space environment; (2) managing pilot demonstrations of new expert system technol-

ogy applications; (3) participating in and monitoring the cooperative AI research grants; and (4) establishing and maintaining peer interaction with the science and technical communities.

Specified qualifications include: (1) in-depth knowledge of expert system development, and computer system architectures (double-weighted); (2) ability to plan, conduct, direct, and report on expert system research (double-weighted); (3) knowledge of cognitive psychology and/or linguistics; and (4) ability to direct and work as a member of an application team. U.S. citizenship and Ph.D. or equivalent in electrical/electronic engineering and/or computer science are required. Permanent position in Federal Service. Salary ranges between \$48,157 and \$53,661, commensurate with experience/education. For further details regarding requirements and application procedures, write #41-83 at the above address or phone (415) 965-5084. Formal applications must be filed by May 15, 1984. An Equal Opportunity Employer.