University fights secrecy ban on computer research

A COMPUTER scientist at the University of Wisconsin's Milwaukee campus has been warned by the federal government not to discuss the results of his research with colleagues because to do so might infringe national security regulations.

Dr George I. Davida, associate professor of electrical engineering and computer sciences, has been conducting research for a number of years supported by the National Science Foundation into the security of computer-based data systems. Although the research is unclassified, Dr Davida has now been told by the Department of Commerce, with which he had filed a patent application resulting from his research, that the study "has been found to contain subject matter, the unauthorised disclosure of which might be detrimental to the national security".

The department has added that unauthorised disclosure of the study, which would include discussion of its results with academic colleagues, could be a violation of patent laws. These carry penalties of up to two years in prison and \$10,000 in fines.

Officials at the university are stunned by the government's action, which they consider to be a serious intrusion of academic freedom, and are seeking legal advice on how to challenge it.

Research into the security of computer-based data systems has become a controversial area in recent years, partly because of concern among officials of the National Security Agency that the open discussion of research results could prejudice their successful application by the federal government.

Last year the agency was accused of harassing scientists working in cryptography during efforts by the National Bureau of Standards to certify a single data encryption standard to be used for all government non-classified information.

An investigation into the NSA's alleged activities was carried out by the Senate Select Committee on Intelligence, which concluded that "there has been no direct or indirect harassment of scientists working in the field of computer security," (a conclusion which will now no doubt be revised).

However, the committee's report added that some NSA officials had expressed concern to the National Science Foundation about certain grants with cryptological ramifications, and suggested that "NSF and NSA should initiate efforts to reduce the ambiguity and uncertainty which surrounds the granting of research funds for public cryptography".

Professor Davida has received two grants from the foundation. The first, which was awarded in 1975, was for a one-year study of cryptographic algorithms for computer data bases. This work involved developing a theory of computation cryptography leading to algorithms for data security having certain required properties (such as resistance to cryptanalysis).

A second grant of \$89,700 was awarded to Dr Davida last year for a two-year study into the theory and practice of data security. In particular he has been working on models for analysing data-base security in situations where information-system users can sometimes retrieve data they are

not authorised to obtain.

Dr Davida submitted a patent application arising from his work in October 1977. As a result of this application, and comments on it received by the Department of Commerce from "a defence agency", he has now been notified from the Patent and Trademark Office that he must not publish the results of his work or discuss it with colleagues. Furthermore any discussions about the research with "foreign nationals" must be officially reported.

Dr Davida would not comment on the affair last week, but issued a statement saying that "because of unanswered legal questions I am unable to discuss a matter of vital concern to me and my colleagues in the academic community." Other computer scientists are surprised the government has reacted so strongly.

Dr Warner A. Baum, chancellor of the University of Wisconsin (Milwaukee) said he was "stunned by the notion that a university professor should get an order from the US government saying that he cannot talk to people about his research". The university does not allow classified research on any of its campuses following bombing of a mathematics building on its Madison campus during anti-Vietnam war demonstrations in 1970.

A spokesman for the NSF said that the foundation had not yet decided whether to join the university in challenging the secrecy order. The case, and its implications for academic freedom, were being given urgent consideration.

David Dickson

Lead levels in Birmingham are typical of urban areas, says UK report

THE results of recent lead pollution studies in Birmingham have focused attention in the UK on the long-standing controversy over the neurological effects of low lead levels in the body. Although the study found that blood lead levels in its sample of Birmingham people were not unusual for urban dwellers, the almost simultaneous release of the results of studies in Germany and the US, suggesting that even these levels could be responsible for mild neuropsychological disturbance in children, have caused some concern.

This is not the first time Birmingham has been the focus for this debate: four years ago a study of blood and

Barnaby

Spaghetti junction: a clean bill of health

air lead concentrations in the area around a new motorway interchange in part of the city suburbs aroused some public concern. The latest study, carried out by a joint working party set up by the UK Department of the Environment in the wake of that concern, set out to assess how the presence of the same motorway system at Gravelly Hill, known colloquially as Spaghetti Junction, has affected local lead levels after several years of

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operation.

The working party found that after the interchange opened, air lead levels near it increased—though not as much as the increase in traffic. It attributes the unexpectedly low increase to the elevated and well-ventilated position of the interchange. However, levels near the junction were found to be higher than those measured at other sites in the city but still below the maximum level currently proposed by the Com-

mission of the European Communities of an annual average of monthly mean values of $2 \mu\text{g}/\text{m}^3$.

Measurements of blood lead levels of adults and schoolchildren living in different parts of the city showed no unusually high values for urban dwellers and no significant increase in those living near the interchange. In the case of the children, however, those living in the inner city areas had slightly higher values than those living in outlying districts. No child however had a level higher than $35 \mu\text{g}/100 \text{ ml}$, the maximum recommended by the European Commission.

The results of the study of pre-school children (aged one to four) are more alarming. Seven out of 83 examined from the inner city areas had levels greater than $35 \mu\text{g}/100 \text{ ml}$. None of them showed any significant psychological disturbance, however, and in only one case could the source of lead be identified—lead rich dust in the home from the preparation of old painted surfaces.

Dr H. A. Waldron, one of the working party members currently at the London School of Hygiene and Tropical Medicine, is extending the work on pre-school children by carrying out another study using a different sampling method. So far his results are in line with those of the original study.

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Calm beneath spaghetti junction

The report of the working party's study effectively gives the Gravelly Hill interchange a clean bill of health. However, Dr Robert Stephens, of the Department of Chemistry, University of Birmingham and also a member of the working party, feels that even the 'normal' levels of blood lead found could be affecting the central nervous systems of as many as 20% of school children.

He has based this figure on the results of recent studies in Germany, Canada and the US which have attempted to correlate minor, clinically non-specific psychological disturbances with lead levels in blood and teeth. The US and German studies found

disturbances in children with lead dentine levels of $20 \mu\text{g}/\text{g}$ and $13 \mu\text{g}/\text{g}$ respectively. A previous study of whole tooth lead in Birmingham children showed that 20% had levels higher than $15 \mu\text{g}/\text{g}$. Hence Dr Stephens figure.

Not all of the members of the working party are as concerned as Dr Stephens about the possible implications of these studies. Different methods of measuring blood and dentine lead levels can give widely varying results, according to Dr R. Archer, Chief Officer in Birmingham's Environmental Department. Even the working party had difficulty at first, he says, in getting their measurements to agree with those taken at the same time by the Institute of Child Health in London.

The present working party is being disbanded soon but Dr Archer will be setting up a new steering group within the next few weeks to decide what subsequent studies should be done. Psychiatric tests in conjunction with measurement of levels of lead in the body are not the only possibilities, however: other areas which the current study has thrown up as needing further investigation are the significance of various forms of lead intake, from food or water for example, and the ways in which lead can be transported from say the work place to home.

Judy Redfearn

NSF budget under fire

FOR the third year in succession a key US congressional committee has recommended major reductions in the research budget requested by the National Science Foundation. The House Appropriations Committee has accepted a subcommittee recommendation that \$893.9 million be appropriated for the NSF in the fiscal year 1979, in contrast to the \$934 million requested by President Carter.

The president's request has already been accepted virtually in full by both House and Senate authorisation committees; in contrast the House Appropriations Committee's recommendation would mean that the increase in the foundation's budget would be reduced from 10% to 3.8%, considerably below the cost of living. In particular, the committee suggests that the NSF's research programmes and related activities should be given a budget of \$806.4 million, which is \$44 million behind the administration's request, allowing an increase of 3.0%.

The main target of the committee's criticisms is the foundation's newly established Applied Science and Research Applications Division (ASRA), which was set up at the beginning of the year as a successor to the widely-criticised Research Applied

to Social Needs (RANN) programme. Stating concern, for example, that ASRA's integrated basic research programme covers "precisely the sort of relevant basic research for which the mission-oriented agencies are responsible," the committee suggests that the programme be limited to \$48.1 million in 1979, rather than the \$73.9 million requested.

At present, NSF officials are not too concerned at the committee's actions. Previous attempts by the same committee have been resisted by the Senate, and have been at least partially restored at the conference stage; it is hoped that the same will happen this year, particularly in light of the president's stated awareness of the problems of university research.

One positive aspect of the appropriations committee's proposals is to increase the administration's request for science education from \$77.6 million to \$82.6 million.

David Dickson

Argentina pressed to free jailed scientists

URUGUAY appears to have taken "a first step" towards restoring human rights, but Argentina continues practices which are "clear violations" of

human rights, according to a delegation of the US National Academy of Sciences, which recently visited them.

The delegation (NAS members Christian B. Anfinsen and Robert P. Perry) reported that in Uruguay they were able to visit the mathematician José Luis Massera who has been in prison since 1975 for his political views. The NAS is at present petitioning the Uruguayan government to allow Professor Massera and his wife to be exiled to a country willing to receive them. The jurist in charge of the case has indicated that "the plea and presence of the NAS could be viewed in a positive light".

In Argentina, however, the delegation found it impossible to visit a political prisoner who had been offered a research post at a US university, neither was the Minister of the Interior willing to meet them to discuss their concern about political prisoners and *desaparecidos* ('vanished persons'). As a result of the delegates' report the NAS Committee on Human Rights is petitioning the Argentinian government to release Elena Sevilla, a physicist, who is still in custody on political charges of which she was acquitted in January 1976, and Dr Claudio Santiago Bermann, a psychiatrist, who is being held in preventive detention without formal charge or trial. □