

empty_set : SET OF α
 union : SET OF $\alpha \times$ SET OF $\alpha \rightarrow$ SET OF α
 intersect : SET OF $\alpha \times$ SET OF $\alpha \rightarrow$ SET OF α
 difference : SET OF $\alpha \times$ SET OF $\alpha \rightarrow$ SET OF α
 is_member : $\alpha \times$ SET OF $\alpha \rightarrow$ BOOLEAN
 singleton : $\alpha \rightarrow$ SET OF α
 subrange : INTEGER \times INTEGER
 \rightarrow SET OF INTEGER
 cardinality : SET OF $\alpha \rightarrow$ INTEGER

Semantics

The semantics of these functions can be defined informally as follows.

null_seq This is the sequence with no components.
 first This function returns the first component
 of a sequence.
 last This function returns the last component
 of a sequence.
 initial This function returns a sequence with its
 last component removed.
 final This function returns a sequence with its
 first component removed.
 add_front This function adds a component to the
 start of a sequence and returns the result.
 add_end This function adds a component to the
 end of a sequence and returns the result.
 concatenate This function concatenates two sequen-
 ces.

start This function takes two sequence argu-
 ments and returns the result of removing
 the second argument from the end of the
 first.
 finish This function takes two sequence argu-
 ments and returns the result of removing
 the second argument from the start of the
 first.
 unit_seq This function returns a sequence with the
 argument as its single component.
 length This function returns the length of a
 sequence.
 empty_set This is the set with no elements.
 union This function returns the set union of its
 two arguments.
 intersect This function returns the set intersection
 of its two arguments.
 difference This function returns the set difference of
 its two arguments.
 is_member This function determines if the first
 argument is an element of the second.
 singleton This function returns the set with the
 argument as its single element.
 subrange This function returns the set of all the
 integers in the subrange specified by its
 arguments.
 cardinality This function returns the cardinality of its
 set argument.

Announcement

1-6 NOVEMBER 1987

Advances in Intelligent Robotics Systems

SPIE's Cambridge Symposium on Optical and Optoelectron Engineering, Hyatt Regency Cambridge, Cambridge, Massachusetts, USA. Held in conjunction with the 13th annual IEEE Industrial Electronics Society Conference - IECON '87. Five conferences to be held covering the following topics.

Intelligent Robots and Computer Vision

This conference will bring major advances and updates in the various aspects of this technology to the attention of the community. It is intended to unify researchers and users in diverse areas and also define new research areas, applications and systems for the intelligent manipulation, analysis and control of data, parts and multisensor information.

Mobile Robots II

The autonomous land vehicle program and other government and industry developments during the past year have advanced the state of the art in mobile robots, hence a two-day conference on this specific topic. 'Mobile' encompasses land, air, sea (surface and subsurface) and space vehicles. 'Robot' includes autonomous and remotely controlled

mobile robots. The first day will address the major theoretical aspects of mobile, autonomous and remotely controlled systems. The second day will focus on working systems and their design, integration and application.

Optics, Illumination and Image Sensing for Machine Vision II

Advances in image-processing architectures have provided speed and inspection capabilities previously not realisable for machine-vision applications. With new development and technology for intelligent machines, inspection tasks are being extended beyond the binary thresholding tests that have long been the mainstay of machine-vision applications. This conference is intended to attract basic researchers, developers of vision systems and users of vision equipment to review existing imaging techniques and devices and to become familiar with emerging technologies which may solve future problems.

Space Station Automation III

In the next few decades, intensive research will be devoted to the application of artificial intelligence and automation technology for the US space programs. The SPIE and AAAI have sponsored many important symposia on critical research issues associated with this application. This symposium hopes to unify

researchers in the areas of artificial intelligence, image science, robotics and other disciplines who are working on various aspects of space station automation and to provide them with a forum to exchange information on their research activities.

Automated Inspection and High-Speed Vision Architectures

The necessity to manufacture with increased production rate and tighter quality control, demands inspection at higher speed and finer resolution, and more accuracy and intelligence. Automated inspection and measurement requires multidisciplinary cooperation and effort in image processing, pattern recognition, and artificial intelligence. Real-time, on-line system implementation requires advances in parallel computer architecture and concurrent processing algorithms. This conference will provide an international forum for the exchange of information among research and development workers in this area.

In addition there will be an Instrument Exhibit and a tutorial Education Program.

Sponsored by SPIE - The International Society for Optical Engineering.

For further information contact: SPIE Technical Program Committee/Robotics '87, P.O. Box 10, Bellingham, WA 98227-0010, USA. (Tel: 206/676-3290.)