

**APPENDIX E. GLOSSARY**

AAAI	American Association for Artificial Intelligence (U.S.)
ACFR	Australian Centre for Field Robotics (Australia)
ADCP	Acoustic doppler current profiler
ADD	Agency for Defense Development (Korea)
AGV	Automated guided vehicle
<i>a priori</i>	From the former or before experience
AI	Artificial intelligence
AIST	National Institute of Advanced Industrial Science and Technology (Japan)
AKI Laboratory	Arimoto-Kawamura-Isaka Laboratory at Ritsumkeikan University (Japan)
ALIVE	Autonomous Light Intervention Vehicle from IFREMER (France)
AMASON	Advanced MApping with SONar and Video at Heriot-Watt University (U.K.)
AOSN	Autonomous Ocean Sampling Network (U.S.)
<i>a priori</i>	Proceeding from a known or assumed cause to a necessarily related effect
ARI	Automation and Systems Research Institute
ARTS Lab	Advanced Robotics Technology and Systems Laboratory at the Polo Sant'Anna Valdera of the Sant'Anna School of Advanced Studies (Italy)
ASME	American Society of Mechanical Engineers (U.S.)
ASRI	Automation and Systems Research Institute at Seoul National University (Korea)
ASTEP	Astrobiology Science and Technology for Exploring Planets (U.S.)
ATR	Advanced Telecommunications Research Institute (Japan)
AUSI	Autonomous Undersea Systems Institute (U.S.)
AUV	Autonomous undersea vehicles
AUVS	Association for Unmanned Vehicle Systems
BcN	Broadband convergence Network
BIO Labs	Biological Laboratories at the Polo Sant'Anna Valdera of the Sant'Anna School of Advanced Studies (Italy)
BKC	Biwako-Kusatsu campus at Ritsumeikan University (Japan)
BT aneurysm	Basilar top aneurysm

CAD	Computer-aided design
CCD	Charge-coupled device
CES	Consumer electronics show
CG	Center of gravity
CIFATT	Research, Development and Technological Transfer Center of IPA Cluj (Romania)
CIMR	China Institute of Mining Systems (China)
CML	Cooperative Mapping and Localization (U.S.)
CMU	Carnegie-Mellon University (U.S.)
CNC	Computerized numerically controlled or computerized numerical control
CNS	Computational Neuroscience Laboratories at ATR (Japan)
CNES	Centre National d'Etudes Spatiales (France)
CNRS	Centre National de la Recherche Scientifique (France)
CNTs	Carbon nanotubes
COE	Center of Excellence (Japan)
CORBA	Common Object Request Broker Architecture
CoRE	Center for Open Robot Experiments
COTS	Commercial-off-the-shelf components
CRASAR	Center for Robot-Assisted Search and Rescue (U.S.)
CRIM	Center for Applied Research in Micro and Nano Engineering at the Polo Sant'Anna Valdera of the Sant'Anna School of Advanced Studies (Italy)
CSP	Constraint satisfaction programming
CT	Computed tomography
CTD	Conductivity, temperature and depth
DARPA	Defense Advanced Research Projects Agency (U.S.)
DC	Direct current
DIND	Distributed Intelligent Network Devices
DIST	Department of Communication, Computer and System Sciences at the University of Genova (Italy)
DKRS	Distributed knowledge representation and reasoning systems

DLR	Deutschen Zentrum für Luft- und Raumfahrt (Germany) German Aerospace Center
DMB	Digital multimedia broadcasting
DoD	Department of Defense (U.S.)
DOF	Degree of freedom
DP	Dynamic positioning
EMATs	Electromagnetic acoustic transducers
EMG sensors	Electromyographic sensors
EPFL	Ecole Polytechnique Fédérale de Lausanne (Switzerland)
ERATO	Exploratory Research for Advanced Technology (Japan)
ESA	European Space Agency
ESRT	Exploration Systems Research and Technology (U.S.)
ETH	Eidgenössische Technische Hochschule Zürich, the Swiss Federal Institute of Technology (Switzerland)
ETS	Engineering Technology Satellites (Japan)
EUROP	European Robotics Platform
EVAs	Extravehicular activities
FPGA	Field programmable gate array
GCS	Guidance Control System (GCS), company formed by Dr. Michael Bradley from Oxford University (U.K.)
GIS	Geographic information system
GPR	Ground penetrating radar
GPS	Global positioning system
GRASP	General Robotics, Automation, Sensing and Perception laboratory at the University of Pennsylvania (U.S.)
GSM	Gain scheduling middleware
GUI	Graphical user interface
HAL	Hybrid Assistive Limb
HOAP	Humanoid for Open Architecture Platform (Japan)
HRI	Human-Robot Interaction
HRP	Humanoid Robotics Project (Japan)

H/W	Hardware
HWRS	Human-friendly Welfare Robot System at KAIST (Korea)
IAIM	Industrial Applications of Informatics and Microsystems at the University of Karlsruhe (Germany)
IARES	Illustrateur Autonome de Robotique mobile pour l'Exploration Spatiale at CNES (France)
IC	Integrated circuit
IDSIA	Istituto Dalle Molle di Studi sull'Intelligenza Artificiale (Italy)
IE	Intelligent environments
IEICE	Institute of Electronic, Information and Communication Engineers
IEEE	Institute of Electrical and Electronics Engineers
IFREMER	Institut Français de Recherche pour l'Exploitation de la Mer (France) French National Institute for Marine Science and Technology
IMU	Inertial measurement unit
INRIA	l'Institut National de Recherche en Informatique et en Automatique (France)
INS	Inertial Navigation System
IN.SAT	Business and Territorial Systems Innovation Laboratory at the Polo Sant'Anna Valdera of the Sant'Anna School of Advanced Studies (Italy)
I/O	Input/output
IPK	Fraunhofer Institute for Production and Design (Germany)
IPSJ	Information Processing Society of Japan (Japan)
IR	Infrared
IRIS	Institute for Robotics and Intelligent Systems at ETH (Switzerland)
IRISA	Institut de Recherche en Informatique et Systèmes Aléatoires (France)
IROS	International Conference on Intelligent Robots and Systems
IRRC	Intelligent Robotic Research Center at KAIST (Korea)
ISH	Intelligent Sweet Home at KAIST (Korea)
ISSAC	Intelligent Sweeping Security Assistant Companion at KIST (Korea)
ISRI	Intelligent Systems Research Institute at AIST (Japan)
IVA	Intravehicular activity
JAMSTEC	Japan Agency for Marine-Earth Science and Technology (Japan)

JARA	Japan Robot Association (Japan)
JEM	Japanese Experiment Module (Japan)
JEMRMS	Japanese Experiment Module Remote Manipulator System (Japan)
JPL	Jet Propulsion Laboratory (U.S.)
JSC	Johnson Space Center (U.S.)
JST	Japan Science and Technology Agency (Japan)
KAIST	Korean Advanced Institute of Science and Technology (Korea)
KIST	Korean Institute of Science and Technology (Korea)
KTH	Royal Institute of Technology (Sweden)
LAAS	Laboratoire d'Analyse et d'Architecture des Systèmes (France)
LASMEA	Le Laboratoire des Sciences et Matériaux pour l'Électronique et d'Automatique (France)
LBL	Long base line
LEO	Low Earth orbit
LIDAR	Light detection and ranging
LIGA	Lithographie (lithography), Galvanoformung (electroplating), Abformung (moulding)
LIRA	Laboratory for Integrated Advanced Robotics at the University of Genova (Italy)
LMS	Laser measurement system
LUSTRE '96	Lucky STRike Exploration 1996 at WHOI (U.S.)
MACLAB	The Mechatronics and Automatic Control LABORatory at the University of Genova (Italy)
MARON	Mobile Agent Robot of the Next Generation (Japan)
MBARI	Monterey Bay Aquarium Research Institute (U.S.)
MBERI	Marine Biotechnology and Environmental Research Institute
MEMS	Microelectromechanical systems
MER	Mars Exploration Rover at NASA (U.S.)
METI	Ministry of Economy, Trade and Industry (Japan)
MEXT	Ministry of Education, Culture, Sports, Science and Technology (Japan)
MFD	Manipulator Flight Demonstration at JAXA (Japan)

MHC	Magnetic Hull Crawler
microEMS	Micro Environmental Monitor System
MIMOT	A bio-mimetic robot from KIST (Korea)
MINAS	Micro and Nano Systems at LAAS (France)
MIT	Massachusetts Institute of Technology (U.S.)
MITI	Ministry of International Trade and Industry (Japan)
MIC	Ministry of Information and Communication (Korea)
MMS	Micro Mechanical System
MOCIE	Ministry of Commerce, Industry and Energy (Korea)
MOLA	Mars Orbital Laser Altimeter from NASA (U.S.)
MOST	Ministry of Science and Technology (Korea)
MR	Magnetic resonance
MRI	Magnetic resonance imaging
MSL	Mars Science Laboratory (U.S.)
MTP	Mars Technology Program at NASA (U.S.)
NASA	National Aeronautics and Space Administration (U.S.)
NASDA	National Space Development Agency, now a part of JAXA (Japan)
NEDO	New Energy and Industrial Technology Development Organization (Japan)
NRF	Network Robot Forum (Japan)
NTRM	National Technology Roadmap (Korea)
ORU	Orbital Replacement Unit at JAXA (Japan)
OSL	Ocean Systems Laboratory at Heriot-Watt University (U.K.)
PAL	Pohang Accelerator Laboratory at PIIR (Korea)
PARO	Knowledge Distributed Robot and the Mental Commit Robot (Japan)
PCI	Peripheral component interface
PEFC	Polymer Electrode Fuel Cell
PERCRO	Perceptual Robotic Laboratory at the Polo Sant'Anna Valdera of the Sant'Anna School of Advanced Studies (Italy)
PHANToM	A haptic device sold by Sensable Technologies
PID	Position, Integral, Derivative

PIIR	Pohang Institute for Intelligent Robots (Korea)
PSV	Polo Sant'Anna Valdera, a research park of the Sant'Anna School of Advanced Studies (Italy)
POSTECH	Pohang Science and Technology University (Korea)
PVDF	Polyvinylidene fluoride
PZT	Lead zirconium titanate
QRIO	Quest for Curiosity robot at Sony (Japan)
RETIS	Real-Time Systems Laboratory at the Polo Sant'Anna Valdera of the Sant'Anna School of Advanced Studies (Italy)
RFID	Radio frequency identification
RIGB	Research infrastructure block grants (Australia)
RIST	Research Institute of Industrial Science & Technology (Korea)
RL	Reinforcement learning
RMS	Remote Manipulator System (Japan)
RNN	Recurrent neural network
ROBEA	Programme Robotique et Entités Artificielles at CNRS (France)
ROTV	Free-flying surface-towed platform
ROV	Remotely operated vehicle
RPI	Rensselaer Polytechnic Institute (U.S.)
RRTs	Rapidly exploring random trees
RT	Robot technology
SCARA	Selective compliant assembly robot arm
SEM	Scanning electron microscope
SFA	Small Fine Arm (Japan)
SIGUBI	SIG on Ubiquitous Computing Systems from IPSJ (Japan)
SJTU	Shanghai Jiao Tong University (China)
SKK	Sungkyunkwan University (Korea)
SLAM	Simultaneous localization and mapping
SLES	Spacecraft Life Extension System (Germany)
SNP	Single nucleotide polymorphism
SNU	Seoul National University (Korea)

SNUUV-1	Seoul National University Underwater Vehicle (Korea)
SoC	System-on-Chip
SONQL	Semi-Online Neural-Q learning algorithm
SPDM	Special Purpose Dexterous Manipulator (Canada)
SSPA	Solid state power amplifier
SUMO	Spacecraft for the Unmanned Modification of Orbits (U.S.)
S/W	Software
TCD	Transcranial Doppler
TEM	Transmission electron microscope
Tflop/s	$10^{12}$ floating point operations per second
TUM	Technical University Munich (Germany)
UAV	Unmanned aerial vehicle
UdG	University of Girona (Italy)
UMASS	University of Massachusetts (U.S.)
UNECE	United Nations Economic Commission for Europe
URC	Ubiquitous Robot Companion (Korea)
URON	Ubiquitous Real-World Oriented Networking at IEICE (Japan)
USBL	Ultra-short baseline
USF	University of South Florida (U.S.)
USC	University of Southern California (U.S.)
USN	u-Sensor Network
VAP	Véhicule Automatique Planétaire project of CNES from 1989 to 1993 (France)
VoIP	Internet telephony
VR	Virtual reality
W-CDMA	Wideband code division multiple access
WHOI	Woods Hole Oceanographic Institution (U.S.)
ZMP	Zero moment point