

# Welcome to the IEEE Robotics & Automation Society!



<http://www.ieee-ras.org>

# IEEE

- The world's largest technical professional association fostering technological innovation and excellence for the benefit of humanity
  - More than 423,000 members
  - Includes 98,000 student members
- – More than 160 countries

Organized into 10 geographical regions

- 330 sections
- ~1900 student branches
- ~2000 chapters



# IEEE

- Composed of 10 technical divisions
  - Technical areas ranging from aerospace systems, computers, and control systems to electron devices, power & energy, and signal processing
  - 39 societies and 7 technical councils



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  - IEEE Robotics and Automation Society is in Division X



# IEEE Robotics and Automation Society (RAS)

- RAS has more than 14,000 members in 110 countries
  - Roughly half in the Americas
  - A quarter in Europe and the Middle East
  - A quarter in Asia and Oceania
- Undergraduate students make 15% of the RAS membership



# RAS Technical Field of Interest

- The Society is interested in both **applied and theoretical issues** in robotics and automation.



iRobot PackBot

- **Robotics:** include **intelligent machines and systems** used, for example, in space exploration, human services, or manufacturing



KAIST Hubo

- **Automation:** use of **automated methods** in various applications, for example, factory office, home, or transportation systems **to improve performance and productivity.**



ABB FRIDA



RST PenelopeCS



# Field of Interest of Robotics and Automation Society

The Society strives to **advance innovation, education, and fundamental and applied research in Robotics and Automation.**

**Robotics** focuses on systems incorporating **sensors and actuators** that **operate autonomously** or semi-autonomously in cooperation with humans. Robotics research emphasizes **intelligence and adaptability** to cope with unstructured environments.

**Automation** research **emphasizes efficiency, productivity, quality, and reliability**, focusing on systems that **operate autonomously, often in structured environments** over extended periods, and on the explicit structuring of such environments.

# What Does RAS Do?

- RAS fosters research and education, professional development and industrial and commercial applications of R&A through:
  - Conferences
  - Workshops and tutorials
  - Publications
  - Technical committees
  - Local and student chapters
  - Summer schools
  - Other activities



# RAS Conferences

- ICRA (International Conference on Robotics and Automation): RAS's flagship conference
- Established in 1984
- ICRA 2015: Seattle, WA USA
  - Over 3000 participants! Organized entirely by women
- ICRA 2016: Stockholm, Sweden
- 2017: Singapore



21-25 May 2018  
Brisbane Convention & Exhibition Centre  
[www.ICRA2018.org](http://www.ICRA2018.org)

# RAS Conferences

## ■ Fully sponsored (9)

- **ARSO** IEEE Workshop on Advanced Robotics and its Social Impacts
- **CASE** IEEE International Conference on Automation Science and Engineering
- **CIRA** IEEE International Symposium on Computational Intelligence in Robotics and Automation
- **Haptics** IEEE Haptics Symposium
- **Humanoids** IEEE-RAS International Conference on Humanoid Robots
- **ICRA** **IEEE International Conference on Robotics and Automation**
- **ISAM** IEEE International Symposium on Assembly and Manufacturing IEEE
- **MEMS** International Conference on Micro Electro Mechanical Systems
- **SSRR** IEEE International Symposium on Safety, Security, and Rescue Robotics

ICRA 2018 will be held in Brisbane, Australia on 21-25 May 2017

<http://www.ieee-ras.org/calendar>

# RAS Conferences

## ■ Partially sponsored (15)

70% MFI	IEEE International Conference on Multisensor Fusion and Integration for Intelligent Systems
60% WHC	World Haptics Conference
50% BioRob	IEEE International Conference on Biomedical Robotics and Biomechatronics IEEE
50% ICORR	International Conference on Rehabilitation Robotics
50% CYBER	IEEE International Conference on Cyber Technology in Automation, Control, and Intelligent Systems
50% ROBIO	IEEE International Conference on Robotics and Biomimetics
40% HRI	ACM/IEEE International Conference on Human-Robot Interaction
35% RO-MAN	IEEE International Symposium on Robot and Human Interactive Communication
33% AIM	IEEE/ASME International Conference on Advanced Intelligent Mechatronics
30% ICAL	IEEE International Conference on Automation and Logistics
30% ICIA	IEEE International Conference on Information and Automation
<b>25% IROS</b>	<b>IEEE/RSJ International Conference on Intelligent Robots and Systems</b>
25% ICMA	IEEE International Conference on Mechatronics and Automation
25% SII	IEEE/SICE International Symposium on System Integration
20% MHS	International Conference on Micro-Nano Mechatronics and Human Science
	IROS 2018 will be held in Madrid, Spain

1-5 October 2018

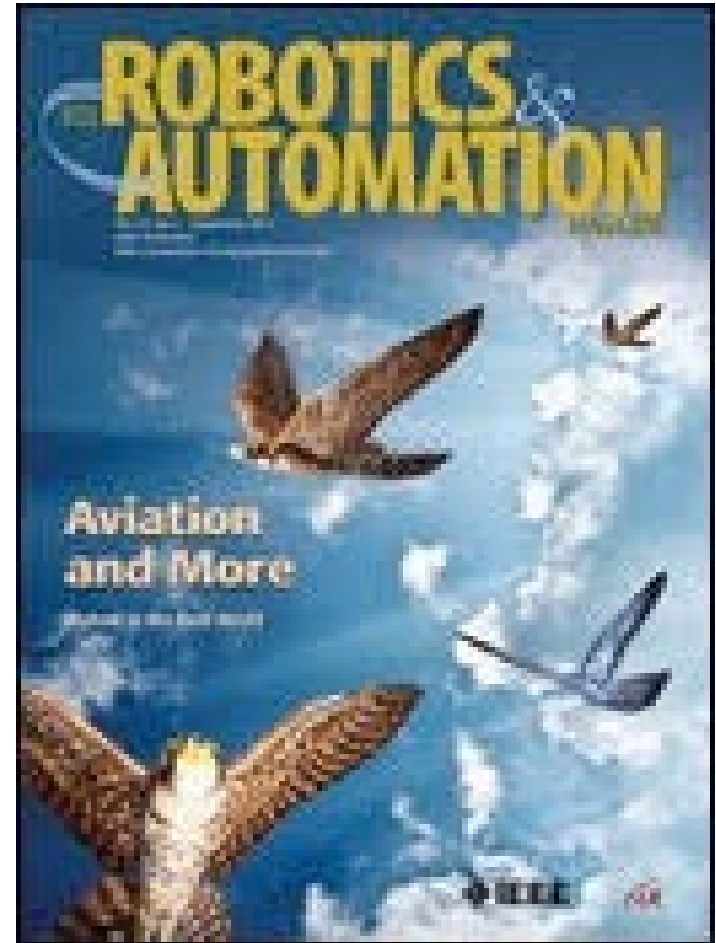
10+ technically cosponsored conferences

# RAS Publications

- *IEEE Robotics and Automation Magazine*
- Three Journals:
  - *IEEE Transactions on Robotics*
  - *IEEE Transactions on Automation Science and Engineering*
  - *IEEE Robotics & Automation Letters*
- Co-sponsor of 6 other journals with other IEEE and non-IEEE organizations (+ 9 technical co-sponsorships)
- RAS Society Members
  - Serve as editors and reviewers
  - Oversee both technical and financial aspects of RAS publications

# ***IEEE Robotics and Automation Magazine***

- Implementations of cutting-edge Robotics and Automation technology
- Tutorials by leading researchers and educators
- Research, education, industry, student, and society news
- Special issues on topics of current interest



# RAS Co-sponsored Journals

- *IEEE Transactions on Haptics*
- *IEEE/ASME Transactions on Mechatronics*
- *IEEE/ASME Journal of MEMS*
- *IEEE Transactions on NanoBioscience*
- *IEEE Transactions on Nanotechnology*
- *IEEE Transactions on Cognitive & Dev. Sys.*
- *IEEE Transactions on Intelligent Vehicles*





# Technical Activities

- IEEE-RAS Distinguished Lecturers
  - RAS – travel support for IEEE-RAS Distinguished Lecturers to visit local chapters
  - Distinguished Lecturers available from Asia & Oceania, the Americas, and Europe
- IEEE-RAS Technical Committees
  - 40 committees to promote technical activities across the diverse field of robotics and automation
  - Opportunity to network with colleagues who share similar research interests
  - Activities include workshops & tutorials, conferences, special issues of journals, web portal

**<http://www.ieee-ras.org/technical>**

# RAS Technical Committees

- Aerial Robotics and Unmanned Aerial Vehicles Agricultural Robotics
- Algorithms for Planning and Control of Robot Motion
- Automation in Health Care Management Automation in Logistics
- Autonomous Ground Vehicles and Intelligent Transportation Systems
- Bio Robotics Cognitive Robotics
- Computer & Robot Vision
- Cyborg & Bionic Systems
- Energy, Environment, and Safety Issues in R&A Haptics
- Human-Robot Interaction & Coordination
- Humanoid Robotics
- Marine Robotics Mechanisms and Design Micro/Nano R&A
- Mobile Manipulation
- Model-Based Optimization for Robotics
- Multi-Robot Systems Neuro-Robotics Systems
- Performance Evaluation and Benchmarking of R&A Systems
- Rehabilitation & Assistive Robotics RoboCup
- Robot Ethics Robot Learning
- Robotics and Automation in Nuclear Facilities
- Safety Security and Rescue Robotics
- Semiconductor Manufacturing Automation Smart Buildings
- Soft Robotics
- Software Engineering for R&A Space Robotics
- Surgical Robotics
- Sustainable Production Automation Telerobotics
- Wearable Robotics
- Whole Body Control

# Member Activities:

## Local and Student Chapters

- Local communities of R&A professionals and students
  - Networking opportunities, professional development, continuing education
  - 275+ local chapters worldwide (including student chapters)
- Chapter support
  - RAS chapter grant, \$2000/year to support local activities (mini-symposia, competitions, workshops, etc.)
  - Distinguished Lecturer travel to local chapter (up to \$3000)
  - “Chapter of the Year” Award: \$1000 grant, most active chapter

# Industrial Activities



KIVA Mobile Fulfillment System  
2008

- IEEE/IFR Forum on Innovation and Entrepreneurship in Robotics and Automation
  - Co-sponsored by International Federation of Robotics
  - Case studies in innovation and entrepreneurship
  - IERA Award – \$2000
- Industry Forum at ICRA
- Standards – help drive industry forward and develop new products
- Technology Watch and Industrial Activities columns
  - *Robotics and Automation Magazine*

<http://www.ieee-ras.org/industrial>

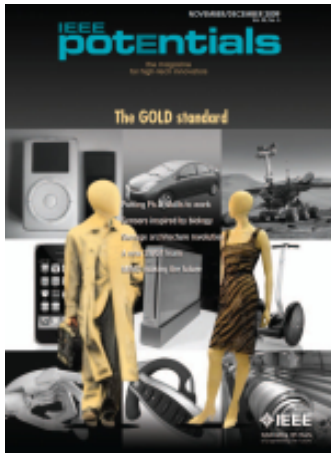
# IEEE RAS Membership

- In 2017, IEEE offers a substantially reduced e-membership. IEEE student membership is \$32.00/year (Asia).
- Starting in 2011, RAS reduced its membership fee by more than 50%. Regular membership is just \$9/year and student membership is \$5/year.

This year RAS is giving a discount offer of 50% for student members and reduced the amount to 2.5\$ until december 31 2020.

# IEEE Membership Benefits

- *IEEE Spectrum Magazine*
- *IEEE Potentials Magazine* (students)
- *The Institute Newsletter*
- Networking opportunities for joint research and career development



- \* Reduced rates for conference registration
- \*



# RAS Membership Benefits

- Eligible for student travel grants and discounted registration fee to attend IEEE International Conference on Robotics and Automation (ICRA)
- Eligible for ICRA author travel award of \$1000 to present papers at ICRA
- Scholarship (reduced student fees) to RAS Summer Schools of Robotics for students and post-doctoral students



# IEEE RAS Exe-Com Members in ASIET



*Jithu  
Augustine  
Chair*



*Sanjana Rose  
Vice-Chair*



*Viswesh  
Parameswaran  
Secretary*



*Prof. Tony K P  
Technical Adviser*

# Benefits For IEEE RAS Members of ASIET

- *Training in designing of robots*
- *Training in robot building*
- *Workshops*
- *Training for different robotic competitions*
- *Giving practical ,technical and software skills*
- *Internships*



# Robotic Events/ Competitions





# How to Join IEEE RAS

- Apply online and receive membership number instantly at:

[http://www.ieee.org/membership\\_services/](http://www.ieee.org/membership_services/)

