IROS Hamburg 2015

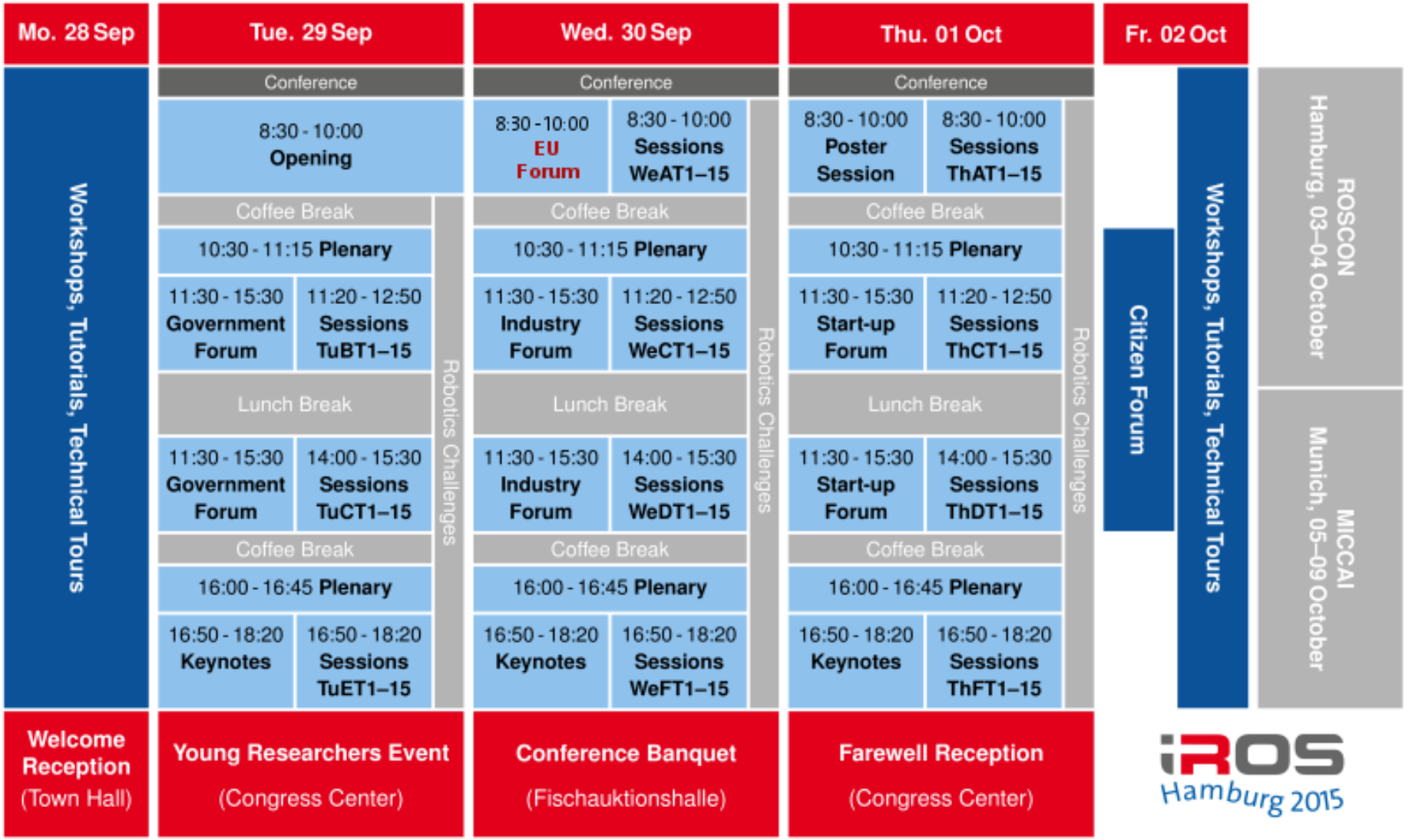
Alois C. Knoll, Program Chair

IROS 2015 Key Data

- 2134 contributed paper submissions (970 accepted ⇔ 45%)
- 165 sessions in 15 parallel tracks
- 51 accepted Workshops and Tutorial submissions
- 72 accepted Late Breaking Poster papers
- 6 plenary and 9 keynote talks
- 2541 registrations
- Government Forum, Industry Forum, EU Forum and Start-up Forum

Program Overview

- 970 Contributed Papers in 165 sessions and 15 parallel tracks
- 51 Workshops and Tutorials
- New: 72 poster papers in the Late Breaking Poster Session
- Government, Industry, EU, Citizen and Start-up fora
- Plenary and Keynote talks



Conference Paper Review Board

Editor-in-Chief

Wolfram Burgard,
University of
Freiburg, Germany

- **272 Associated Editors**
- **5444 Reviews from**
- **3465 Reviewers**

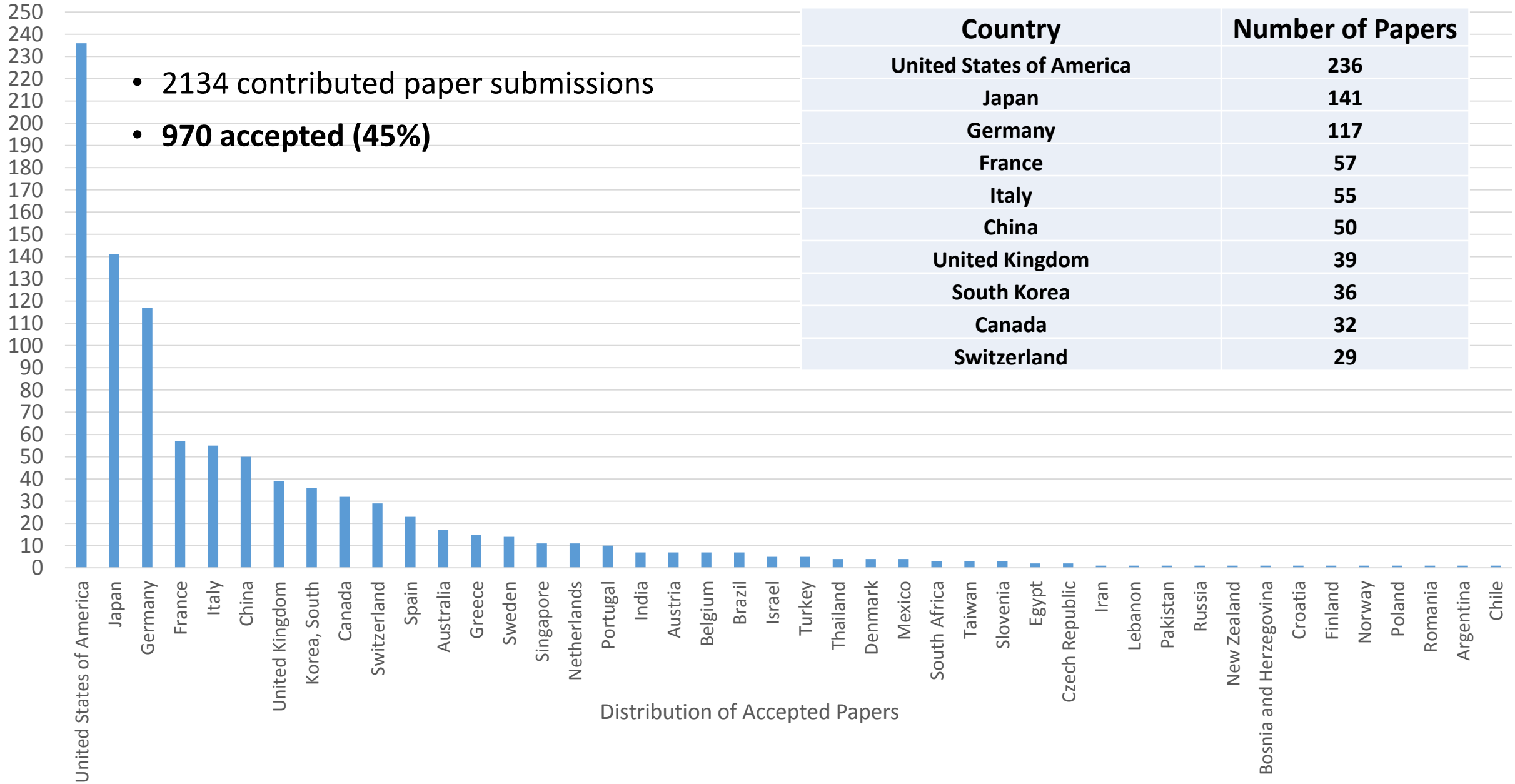
Editors

- Adriana Tapus, ENSTA-ParisTech, France
- Cedric Pradalier, Georgia Tech Lorraine, France
- Carme Torras, Technical University of Catalonia, Spain
- Danica Kragic, KTH, Sweden
- Dezhen Song, TAMU, USA
- Eiichi Yoshida, AIST, Japan
- Fumihito Arai, Nagoya University, Japan
- Giuseppe Oriolo, Università di Roma La Sapienza, Italy
- Jose A. Castellanos, University of Zaragoza, Spain
- Jorge Dias, University of Coimbra, Portugal
- Jan Peters, TU Darmstadt, Germany
- Jean-Pierre Merlet, INRIA Sophia Antipolis, France
- Keehoon Kim, Korea Institute of Science and Technology, South Korea
- Maren Bennewitz, University of Bonn, Germany
- Roderich Gross, University of Sheffield, UK
- Shinichi Harai, Ritsumeikan University, Japan
- Siddhartha Srinivasa, Carnegie Mellon University, USA
- Tatsuo Arai, Osaka University, Japan
- Torsten Kroeger, Stanford University, USA

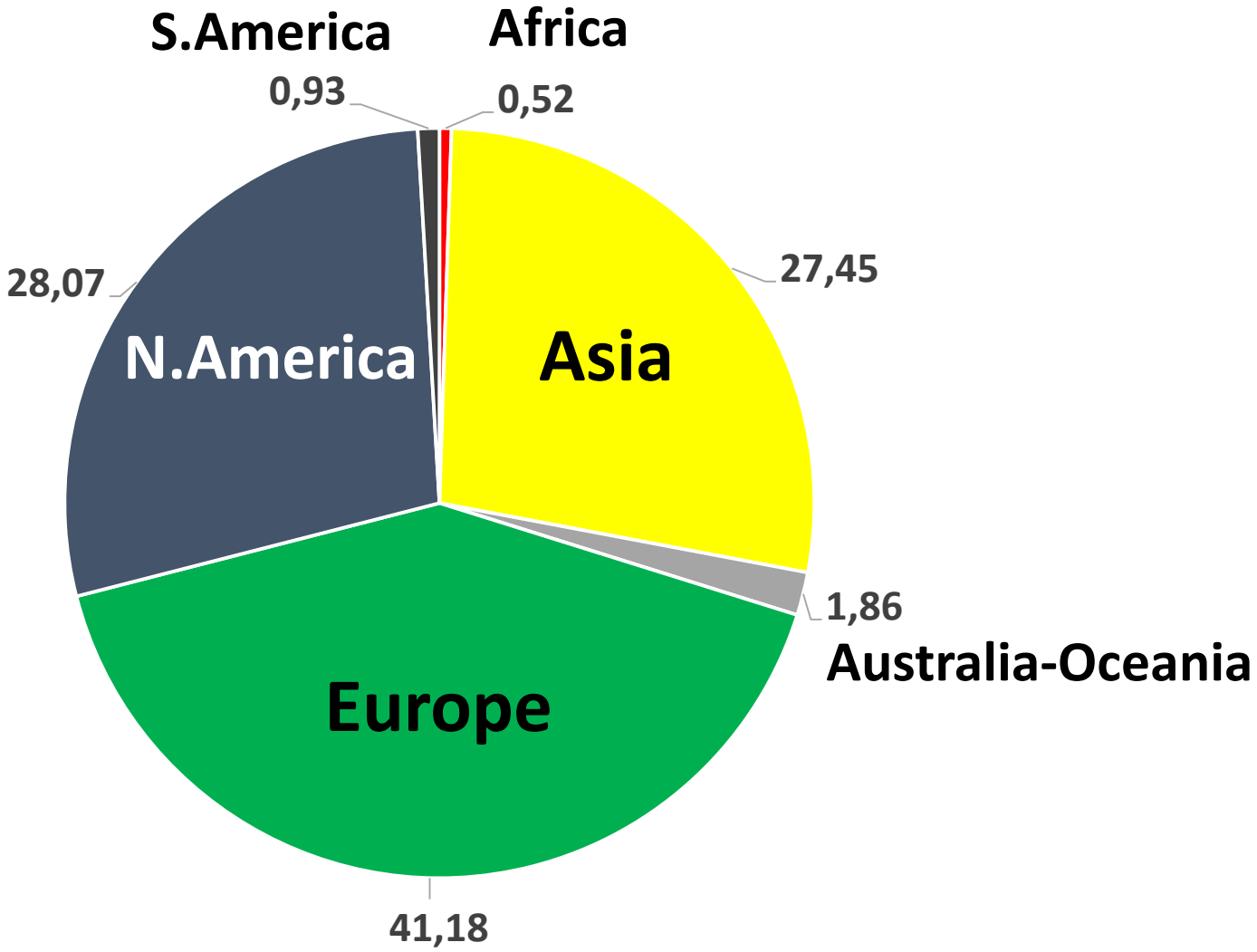
- 2134 contributed paper submissions
- **970 accepted (45%)**

Top 10 Countries

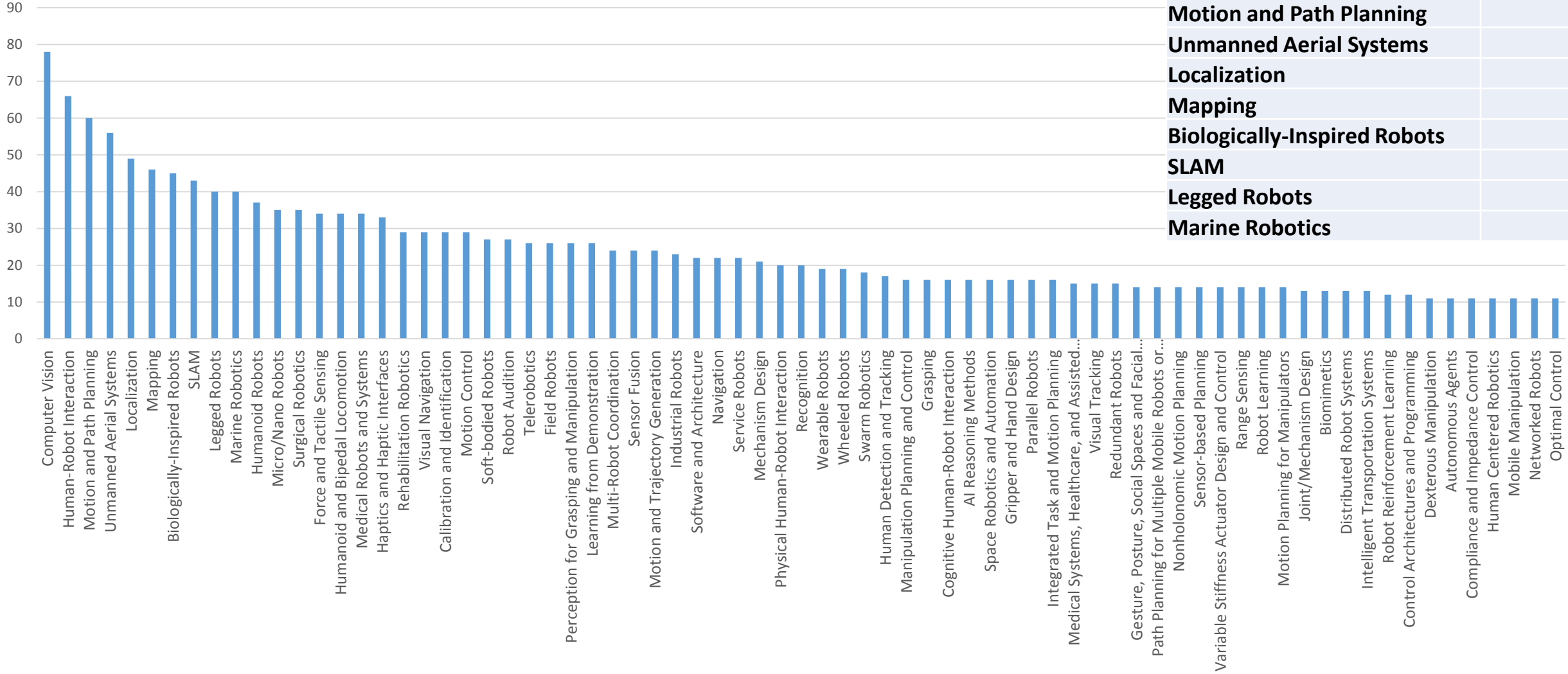
Country	Number of Papers
United States of America	236
Japan	141
Germany	117
France	57
Italy	55
China	50
United Kingdom	39
South Korea	36
Canada	32
Switzerland	29



Distribution % of Accepted Papers across Continents



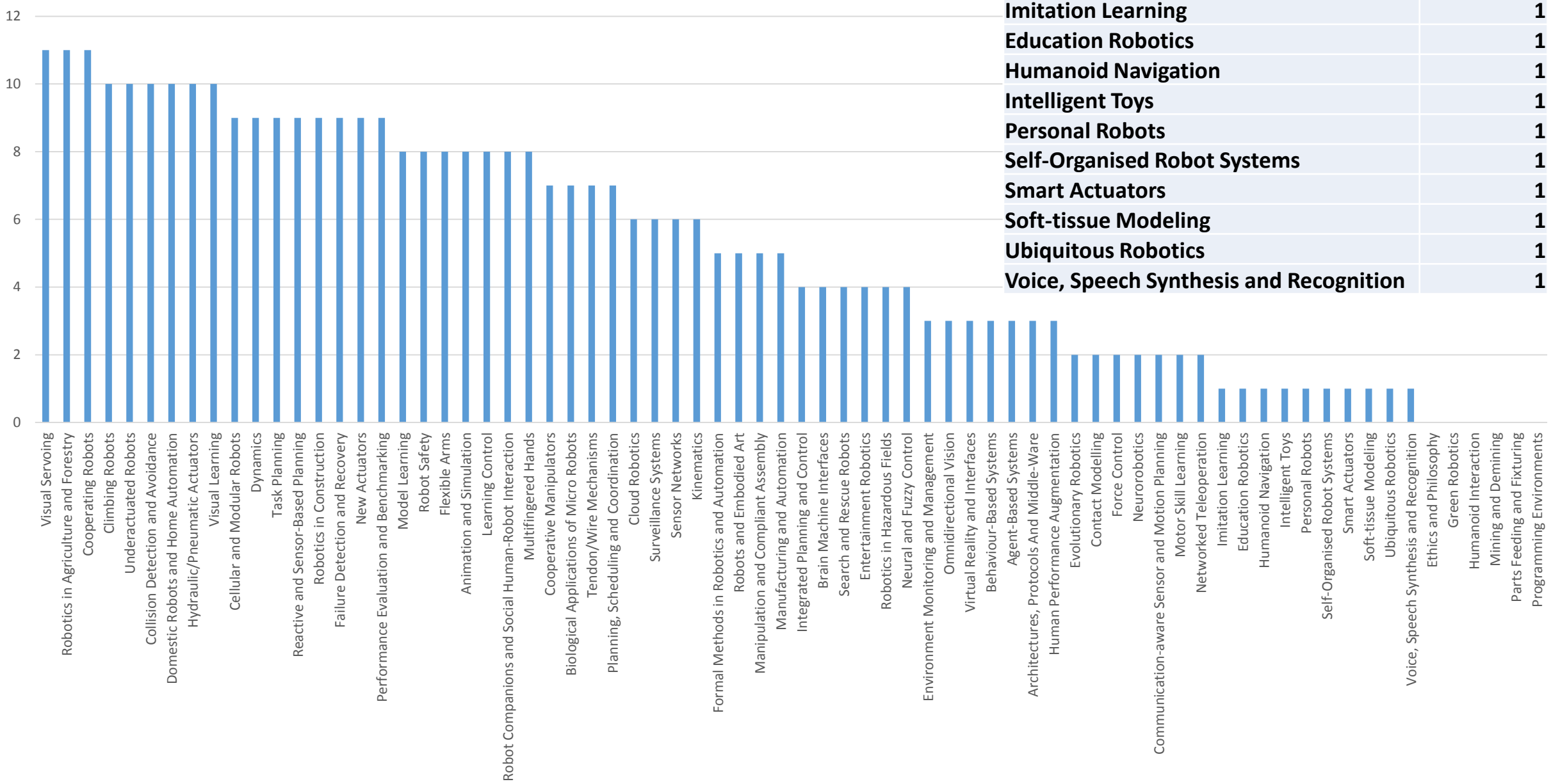
First-Keyword Distribution (Submitted Papers) – Head of List



10 most frequent

Computer Vision	78
Human-Robot Interaction	66
Motion and Path Planning	60
Unmanned Aerial Systems	56
Localization	49
Mapping	46
Biologically-Inspired Robots	45
SLAM	43
Legged Robots	40
Marine Robotics	40

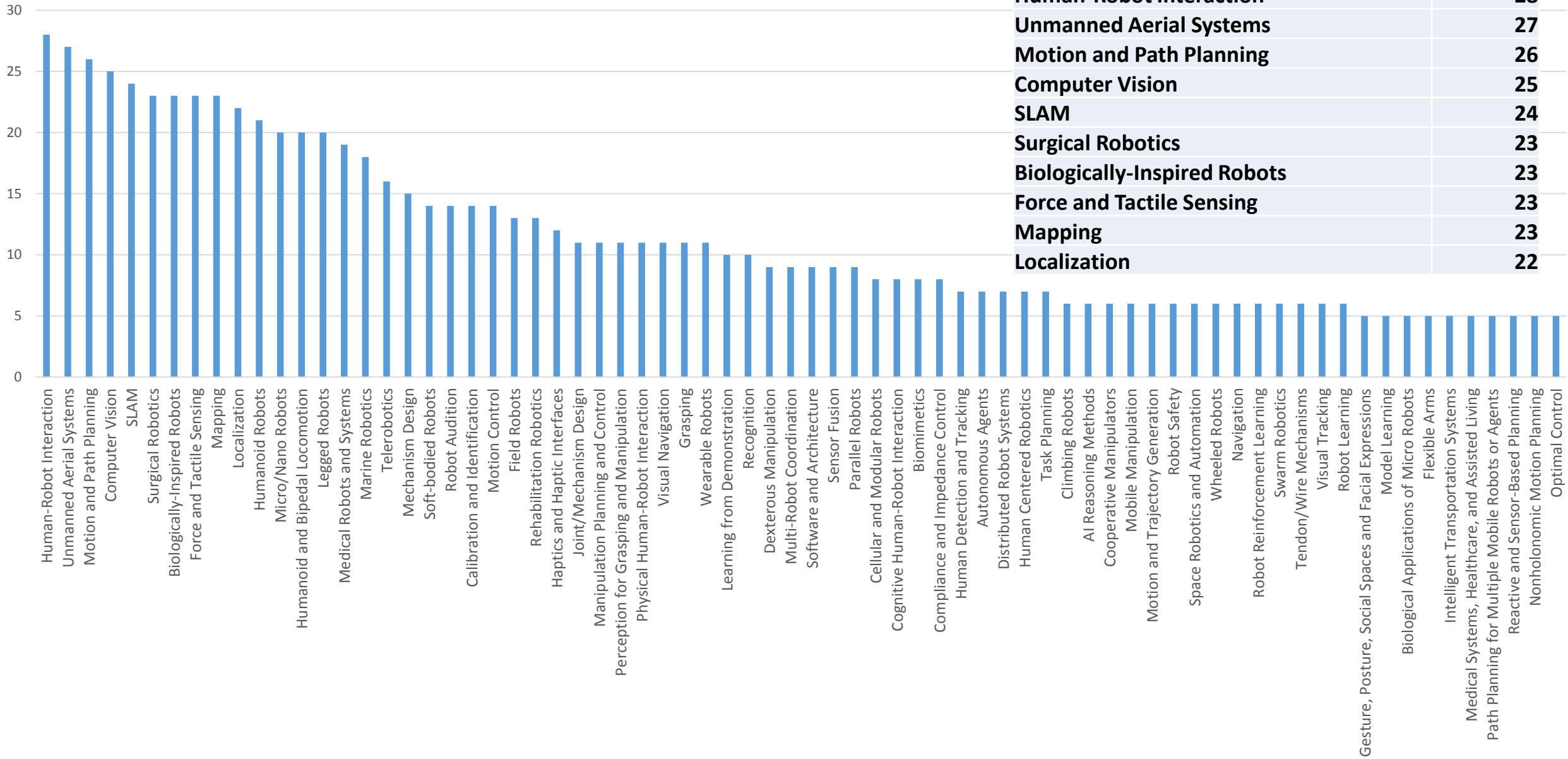
First-Keyword Distribution (Submitted Papers) – Tail of List



10 least frequent

Imitation Learning	1
Education Robotics	1
Humanoid Navigation	1
Intelligent Toys	1
Personal Robots	1
Self-Organised Robot Systems	1
Smart Actuators	1
Soft-tissue Modeling	1
Ubiquitous Robotics	1
Voice, Speech Synthesis and Recognition	1

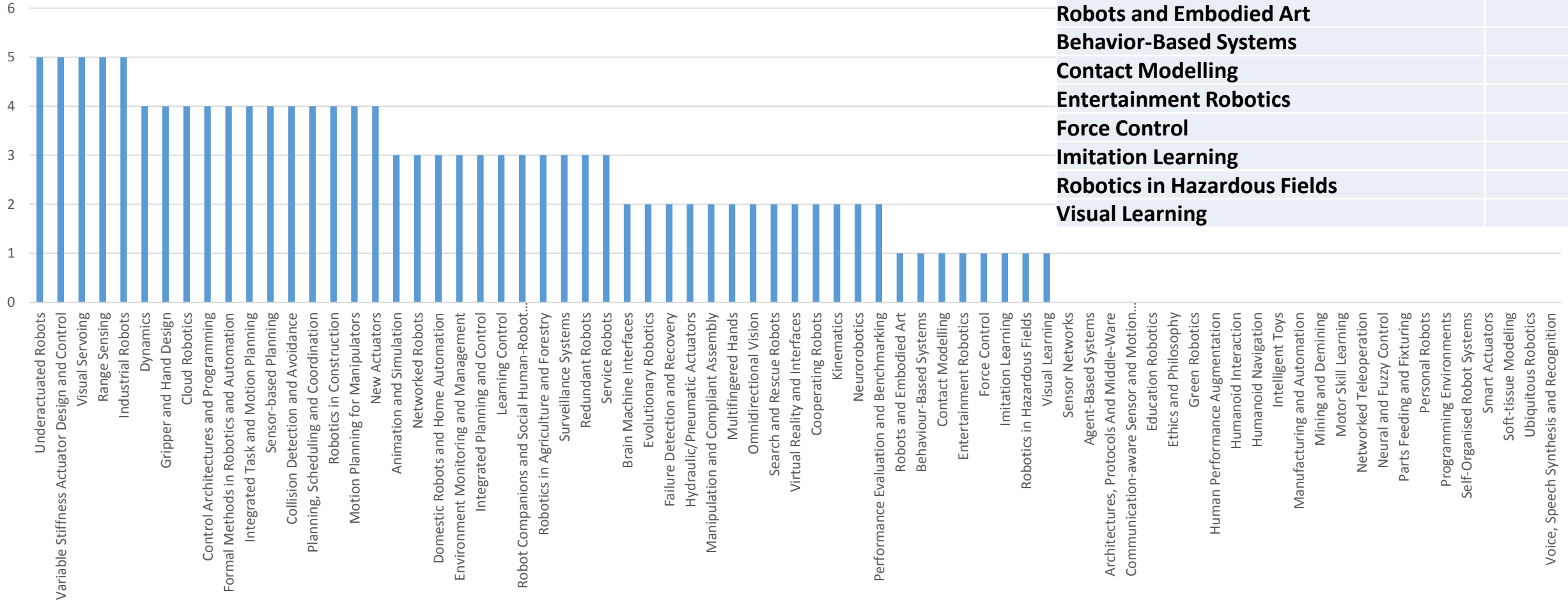
First-Keyword Distribution
(Final Version Received Papers) – Head of List



10 most frequent

Human-Robot Interaction	**28**
Unmanned Aerial Systems	**27**
Motion and Path Planning	**26**
Computer Vision	**25**
SLAM	**24**
Surgical Robotics	**23**
Biologically-Inspired Robots	**23**
Force and Tactile Sensing	**23**
Mapping	**23**
Localization	**22**

First-Keyword Distribution
(Final Version Received Papers) – Tail of List

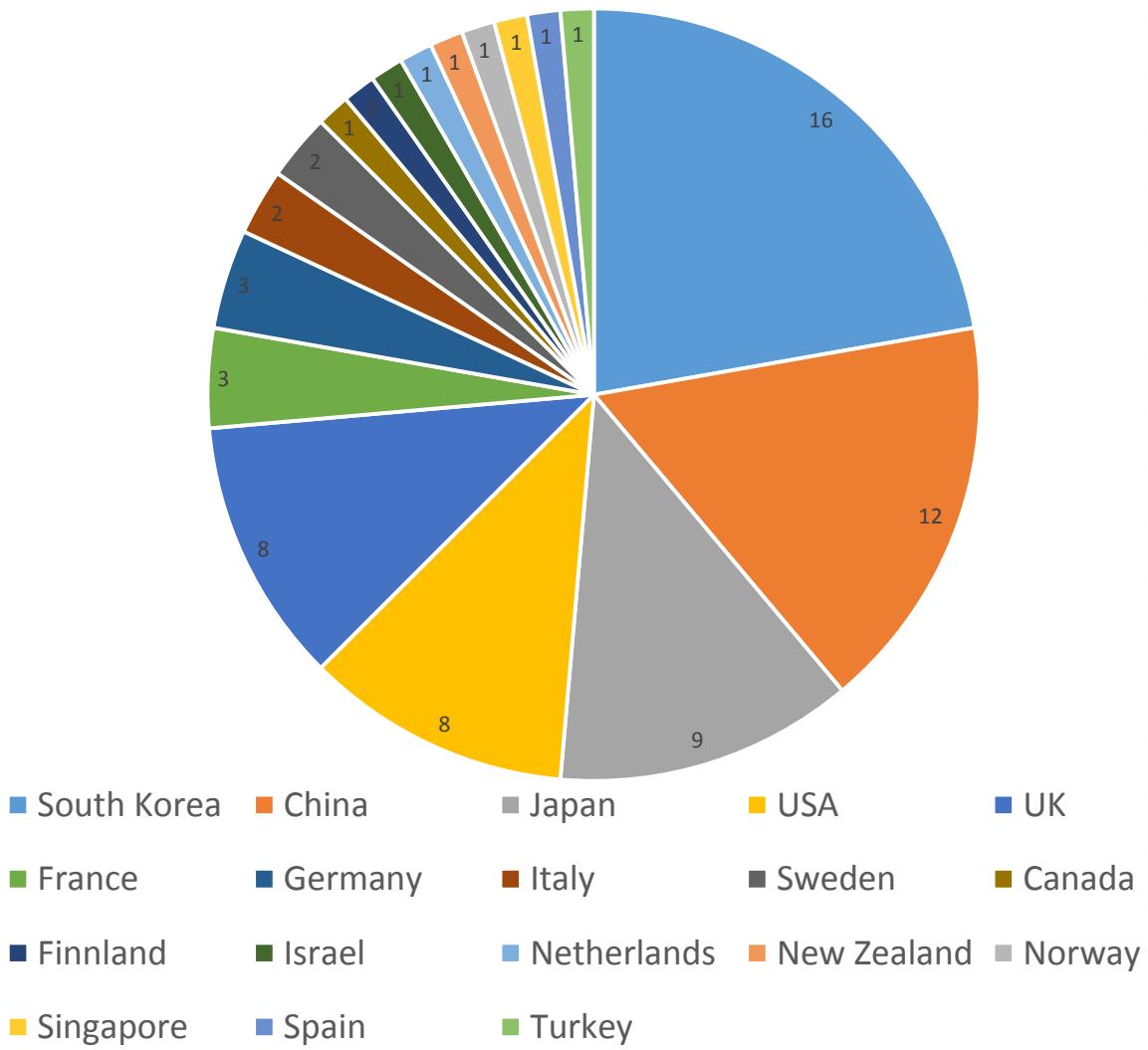


10 least frequent

Neurorobotics	2
Performance Evaluation and Benchmarking	2
Robots and Embodied Art	1
Behavior-Based Systems	1
Contact Modelling	1
Entertainment Robotics	1
Force Control	1
Imitation Learning	1
Robotics in Hazardous Fields	1
Visual Learning	1

Late Breaking Poster Session

72 Posters will be Presented



Country	Number of Posters
South Korea	16
China	12
Japan	9
USA	8
UK	8
France	3
Germany	3
Italy	2
Sweden	2
Canada	1
Finnland	1
Israel	1
Netherlands	1
New Zealand	1
Norway	1
Singapore	1
Spain	1
Turkey	1

Swarm Robotics	6
Human-Robot Interaction	4
Motion Control	3
Haptics and Haptic Interfaces	3
Computer Vision	2
Localization	2
Medical Robots and Systems	2
Soft-bodied Robots	2
Parallel Robots	2
Biomimetics	2

10 most frequent keywords

Plenary Speakers

Practice makes Perfect? The Role of Place-Dependent Expertise in Mobile Robotics
***Paul Newman**, Mobile Robotics Group, University of Oxford*
Tuesday, September 29, 10:30-11:15, Hall 2

Robotic Governance: Paving the Way for Generation 'R'
***Bernd Liepert**, Chief Innovation Officer, KUKA AG*
Wednesday, September 30, 16:00-16:45, Hall 2

The New Robotics Age: Meeting the Physical Interactivity Challenge
***Oussama Khatib**, Artificial Intelligence Laboratory, Department of Computer Science, Stanford University*
Tuesday, September 29, 16:00-16:45, Hall 2

From Mimicry to Mastery: Creating Machines that Augment Human Skill
***Gregory D. Hager**, Johns Hopkins University*
Thursday, October 1, 10:30-11:15, Hall 2

From Geometry to Startups and to …Incubators
***Zexiang Li**, Robotics Institute, Hong Kong University of Science and Technology*
Wednesday, September 30, 10:30-11:15, Hall 2

Supercomputing the loop of Biomechanics and Neuroscience
***Yoshihiko Nakamura**, University of Tokyo*
Thursday, October 1, 16:00-16:45, Hall 2

Keynote Speakers

What We Learned from Darpa Robotics Challenge
***Jun Ho Oh**, Humanoid Robot Research Center, Korea Advanced Institute of Science and Technology*
Tuesday September 29, 16:50-17:20, Hall 2

Assembly and Drug Discovery
***Lianqing Liu**, Shenyang Institute of Automation (SIA), Chinese Academy of Science*
Wednesday September 30, 16:50-17:20, Hall 2

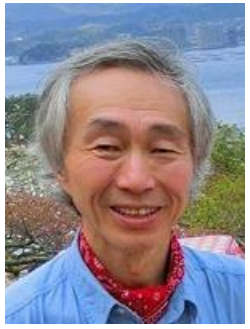
Reconstructed Brain Models for Virtual Bodies and Robots
***Marc-Oliver Gewaltig**, The Blue Brain Project, Ecole polytechnique fédérale de Lausanne*
Thursday October 1, 16:50-17:20, Hall 2

Enter Deep Learning
***Patrick van der Smagt**, Biomimetic robotics and machine learning, Technische Universität München*
Tuesday September 29, 17:20-17:50, Hall 2

Robot Ethics in the Era of Self-Driving Automobiles
***George Bekey**, University of Southern California, Los Angeles*
Wednesday September 30, 17:20-17:50, Hall 2

Optimization for Robust Motion Planning and Control
***Russ Tedrake**, Robot Locomotion Group, Massachusetts Institute of Technology*
Thursday October 1, 17:20-17:50, Hall 2

Robots, Politics, and Ethics: How Autonomous Driving Transforms Our Way of Thinking About Machines
***Björn Giesler**, Head of Driver Assistance, Elektrobit Automotive GmbH*
Tuesday, September 29, 17:50-18:20, Hall 2



Application of the Robot Systems and Technologiesfor Natural Disaster Response andInfrastructure Maintenance in Japan
***Shin'ichi Yuta**, Shibaura Institute of Technology*
Wednesday, September 30, 17:50-18:20, Hall 2

Research, Development and Field Test of Robotic Observation Systems for Sctive Volcanic Areas in Japan
***Keiji Nagatani**, Field Robotics Laboratory, Tohoku University*
Thursday, October 1, 17:50-18:20, Hall 2

Citizen Forum

Gateway to Robot Technologies for Challenging Applications and Societal Life

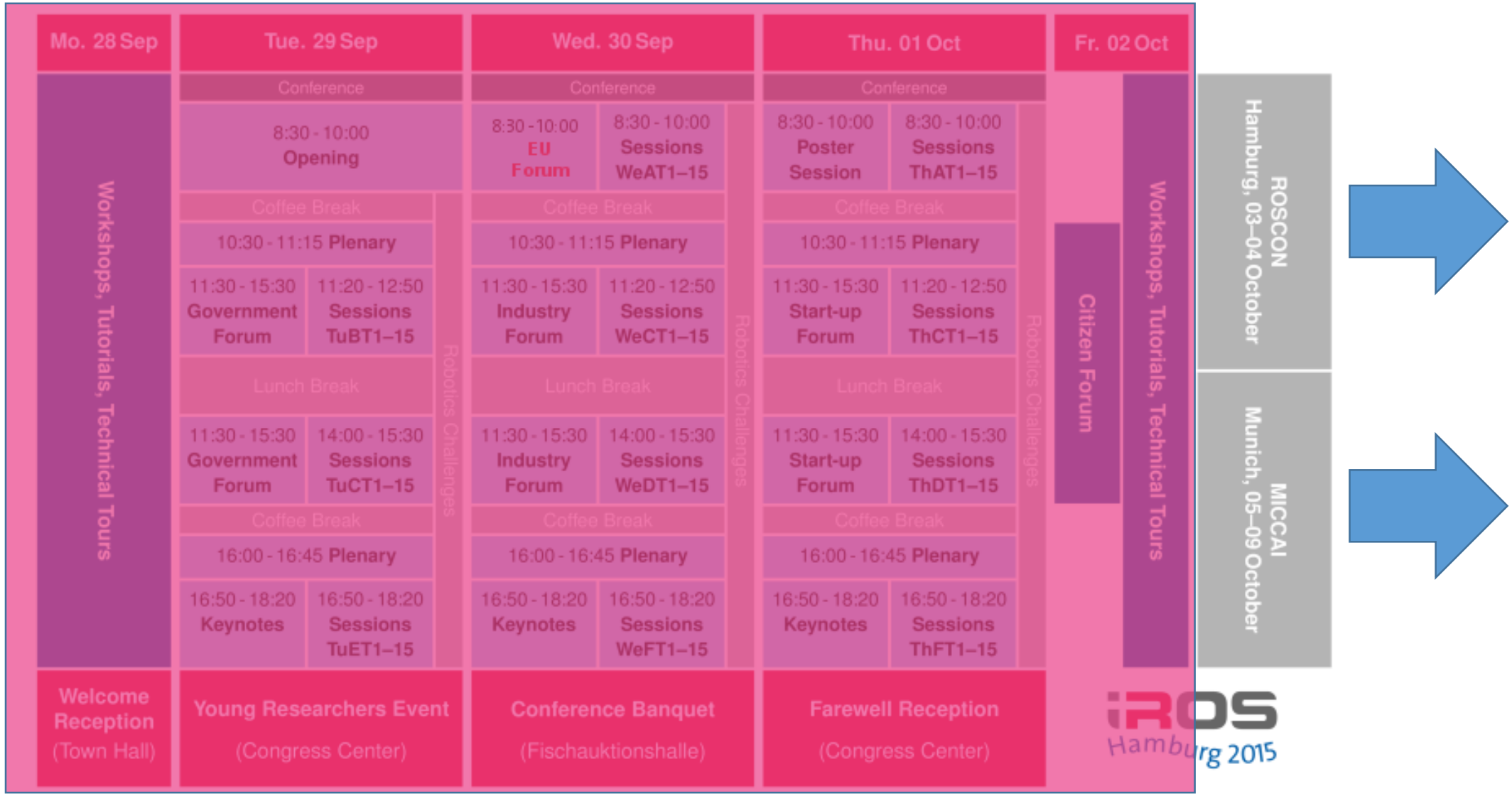
Friday, October 02, 2015, 9:00 -12:00 and 14:00 - 17:00h, Hall 2
Organizers: Rüdiger Dillmann and Tamim Asfour

Englischsprachige Vortragsreihe

09:00–09:40	Dario Floreano	École polytechnique fédérale de Lausanne, Schweiz *Bio-inspired Flying Robots*
09:40–10:20	Darwin Caldwell	Instituto Italiano di Tecnologia, Genua, Italien *Whole Body Loco-Manipulation in Complex, Unstructured Environments*
10:20–10:40		Kaffeepause
10:40–11:20	Kazuhito Yokoi	National Institute of Advanced Industrial Science and Technology, Tsukuba, Japan *Humanoid Robots: How Close to the Human?*
11:20–12:00	Oussama Khatib	Stanford University, Kalifornien, USA *Meeting the Friendly Robots*
12:00–14:00		Mittagspause & Roboter-Demo

Deutschsprachige Vortragsreihe

14:00–14:40	Roland Siegwart	Eidgenössiche Technische Hochschule Zürich, Schweiz *Roboter die fahren, rennen, schwimmen oder fliegen*
14:40–15:20	Wolfram Burgard	Universität Freiburg *Obelix – Ein Roboter auf Reisen*
15:20–15:40		Kaffeepause
15:40–16:20	Heinz Wörn	Karlsruher Institut für Technologie *Medizinrobotikforschung und ihre Anwendung im Operationssaal*
16:20–17:00	Sami Haddadin	Universität Hannover *Roboter als Helfer im Alltag des Menschen*


Mo. 28 Sep
Tue. 29 Sep
Wed. 30 Sep
Thu. 01 Oct
Fr. 02 Oct
Workshops, Tutorials, Technical Tours
Conference
8:30 - 10:00 Opening
Coffee Break
10:30 - 11:15 Plenary
11:30 - 15:30 Government Forum
11:20 - 12:50 Sessions TuBT1–15
Lunch Break
11:30 - 15:30 Government Forum
14:00 - 15:30 Sessions TuCT1–15
Coffee Break
16:00 - 16:45 Plenary
16:50 - 18:20 Keynotes
16:50 - 18:20 Sessions TuET1–15
Robotics Challenges
Conference
8:30 - 10:00 EU Forum
8:30 - 10:00 Sessions WeAT1–15
Coffee Break
10:30 - 11:15 Plenary
11:30 - 15:30 Industry Forum
11:20 - 12:50 Sessions WeCT1–15
Lunch Break
11:30 - 15:30 Industry Forum
14:00 - 15:30 Sessions WeDT1–15
Coffee Break
16:00 - 16:45 Plenary
16:50 - 18:20 Keynotes
16:50 - 18:20 Sessions WeFT1–15
Robotics Challenges
Conference
8:30 - 10:00 Poster Session
8:30 - 10:00 Sessions ThAT1–15
Coffee Break
10:30 - 11:15 Plenary
11:30 - 15:30 Start-up Forum
11:20 - 12:50 Sessions ThCT1–15
Lunch Break
11:30 - 15:30 Start-up Forum
14:00 - 15:30 Sessions ThDT1–15
Coffee Break
16:00 - 16:45 Plenary
16:50 - 18:20 Keynotes
16:50 - 18:20 Sessions ThFT1–15
Robotics Challenges
Citizen Forum
Workshops, Tutorials, Technical Tours
Welcome Reception (Town Hall)
Young Researchers Event (Congress Center)
Conference Banquet (Fischauktionshalle)
Farewell Reception (Congress Center)
ROSCON Hamburg, 03–04 October
MICCAI Munich, 05–09 October
iROS Hamburg 2015

PAULANER

A final Thank You to our local organizers and 130 helpers …