

# Lowering barriers for robotics research

<https://r4a.uclalemur.com>

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with

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RSS 2023 workshop

# Organizers



# Barriers

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What does it take to get published at RSS?



# Barriers

What does it take to get published at RSS?

- ▶ GPU(s)
- ▶ Cloud credits
- ▶ 6+ DOF robot arm
- ▶ ~~VICON~~
- ▶ ???

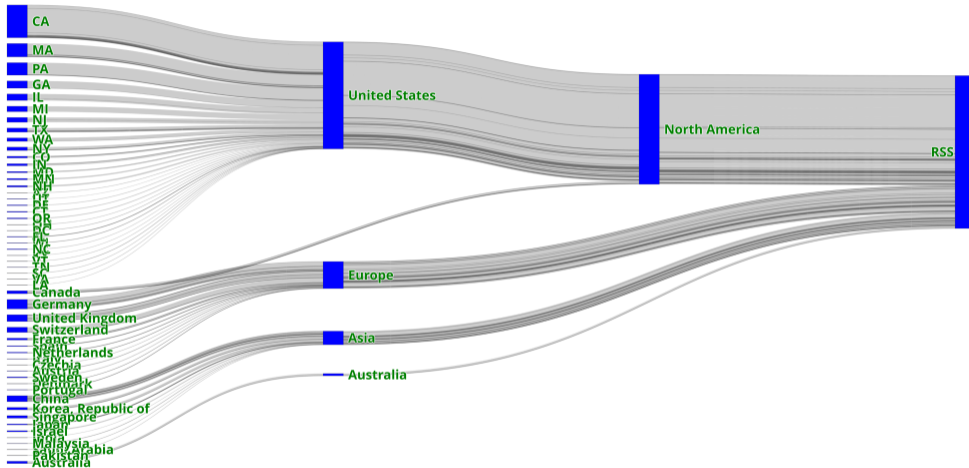
## Some data

- ▶ 4 years of RSS: 2020-2023
  - ▶ <https://roboticsconference.org/program/papers/>
  - ▶ <https://roboticsconference.org/2022/program/papers/>
  - ▶ <https://roboticsconference.org/2021/program/papers/>
  - ▶ <https://roboticsconference.org/2020/program/papers/>
- ▶ 381 papers, 445 authors (417 unique)

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- ▶ Parsing code available at:
  - ▶ <https://git.uclalemur.com/mehtank/rss-authorship>

# RSS author locations, 2020-2023

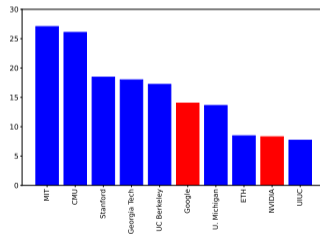
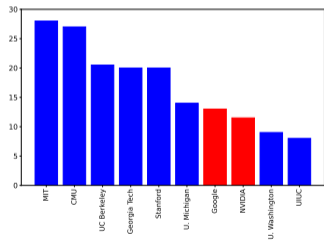
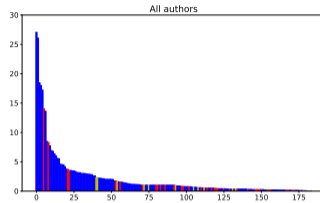
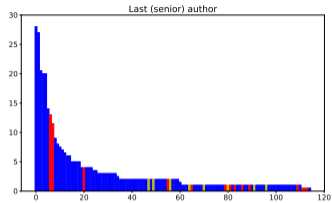


## Authorship vs Population

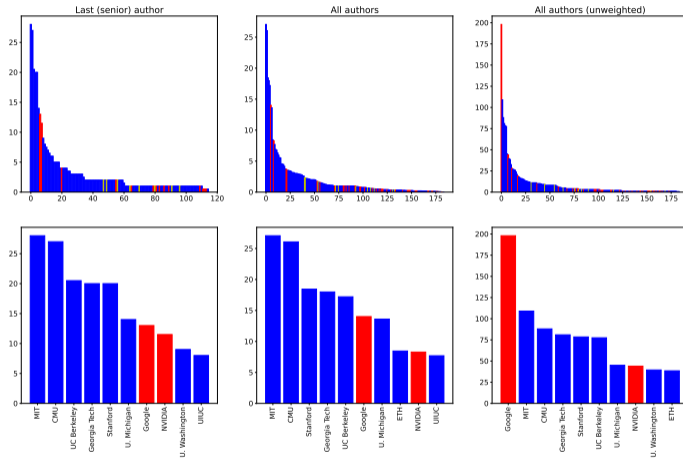
Country	RSS %	World %
United States	70.02	4.25
Germany	6.19	1.07
United Kingdom	4.41	0.87
China	3.87	18.47
Switzerland	3.36	0.11
Canada	1.92	0.48
Singapore	1.68	0.08
Korea, Republic of	1.59	0.66
Australia	1.47	0.33
France	1.20	0.84
—	—	—
Everywhere else	4.17	72.84

<https://www.worldometers.info/world-population/population-by-country/>

(Weighted) authorship count by institution  
RSS 2020-2023



(Weighted) authorship count by institution  
RSS 2020-2023



## Demographics: Protected classes (USA)

- ▶ Race
- ▶ Religion
- ▶ National origin
- ▶ Age (40 and over)
- ▶ Sexual orientation and gender identity
- ▶ Pregnancy
- ▶ Familial status (children)
- ▶ Disability status
- ▶ Veteran status
- ▶ Genetic information

[https://en.wikipedia.org/wiki/Protected\\_group#United\\_States](https://en.wikipedia.org/wiki/Protected_group#United_States)



## Demographics: Other classes

- ▶ Socioeconomic status
- ▶ Education
- ▶ Familial status (parent / guardians)
- ▶ Criminal history
- ▶ ???

## Our mission

Robots of the future should be built by, reflect, work with and support **all humans**, not just a select few. Creating such a diverse robot pantheon starts with **improving access to ongoing robotics research and discourse** today.

# Agenda

## Keynotes

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**Ken Goldberg**



► UC Berkeley

**Expanding Access to Robots for Education and Research**

**Nia Jetter**



► Sr. Principal Technologist, Amazon Global Robotics

**Exposure Matters - A journey through Aerospace to Robotics**

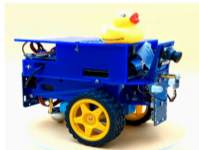
# Agenda

## Robotics kits

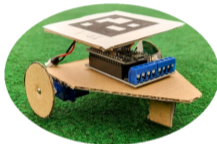
Vibration Motor-based Robot Kits as a Foundation for Basic Mechatronics Skills



Duckietown\*

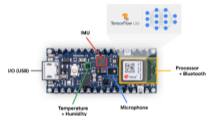


REMS: Robotics Educational Middleware system



FlowIO / the Soft Robotics Toolkit

## Posters



# Agenda

## Participation and discussion:

- ▶ Kit playtesting
- ▶ Kit evaluation and feedback
- ▶ Panel / round-table / town hall
- ▶ Action items

## To think about today:

- ▶ How did you get started in robotics? And then research?
- ▶ What did it take to get from there to where you are today?
  - ▶ Is there a difference between hacking, education, and/or research?
- ▶ What barriers did (or didn't) you face along that process?

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- ▶ What barriers did (or didn't) you face along that process?
  
- ▶ How does this relate to others?
  - ▶ What of your experience is relevant to others?
  - ▶ How might you learn about others' different experiences?
- ▶ Who aren't you exposed to at robotics conferences?
- ▶ **What power do we have to make a change?**