

# KUKA



KUKA Innovation Award 2023  
\_Open Platform Challenge





## KUKA Innovation Award 2023 – Call for Participation \_Open Platform Challenge

### Objectives of the Award

As a world-leader in robot-based automation, KUKA has maintained an intense collaboration with academia and R&D partners worldwide on various scientific and technical topics for many years. To take this collaboration to the next level the KUKA Innovation Award has been established in 2014. It comes with a substantial financial prize of €20,000. The competition leading to the award is intended to accelerate the pace of innovation in the field of robot-based automation at large and improve technology transfers from research to industry.

The KUKA Innovation Award 2023 comes with big news: For the first time the competition will be based on our newly introduced robot operating system and ecosystem [iiQKA](#). This enables the robotics community to implement their own hardware and software extensions on a KUKA robot much easier than before, making a modern, powerful and scalable basis for technology innovation within robotics available.

In the same spirit we defined the motto for this year's award: The Open Platform challenge. This means this year all participants have the freedom to do whatever they have in mind- there are almost no limits for ideas.

Many tasks in small and medium sized companies are not automated yet. The proposed application shall simplify the engineering, setup and programming for customers, who are producing varying products in small to medium lot sizes. Your contribution shall leverage iiQKA and the LBR iisy as a flexible tool for machine tending, glue dispensing, quality inspection or other typical automation tasks. By your contribution, the end user is able to quickly and safely automate tasks, without being an expert within the automation domain.

Applicants for the Innovation Award are invited to select use cases, small and medium sized enterprises can benefit from, e.g., simplified setup and commissioning, intuitive operation, and flexible utilization of robots as a companion in production.

The focus should be on introducing and demonstrating new and interactive methods for personalizing and improving usability. The system concept should be versatile, i.e. broadly applicable, maybe even outside the industrial field, and not only limited to an engineering approach for solving a specific use case. Participants from academia, research and industry are encouraged to present system concepts that can lead to, or are already on the edge to, commercialization.



## Participating in the KUKA Innovation Award

The competition is open to the robotics research community at large (including companies). This includes researchers and developers at a post-graduate level or higher as well as research teams. Individuals and teams must belong to a legal entity that enters into an agreement with KUKA for the purpose of the competition.

The first step in participating in the KUKA Innovation Award is the creation of a proposal. This proposal should include a motivation for the solution to be developed, details regarding its realization and ideally an already established proof of concept in a working system. Transferring experiments and results from legacy components to the hardware provided by KUKA is particularly encouraged. A realistic implementation plan and a description of the team's experience should also be provided. The proposal for participating and getting access to the sponsored hardware must be submitted electronically by May 08, 2022 via mail to [innovationaward@kuka.com](mailto:innovationaward@kuka.com). The proposals will be reviewed and rated based on the assessment criteria below. The 10 top-ranked teams will be invited to pitch their proposals to an international team of judges in an online interview session. After that, the top 5 teams will be chosen as finalists and KUKA will announce the selected finalists by May 20, 2022.

KUKA offers the 5 finalist teams a free of charge lightweight robot LBR iisy optionally enhanced with a Roboception 3D vision system and all additional products available in the Roboception web shop for the duration of the competition. While using the LBR iisy is mandatory for the finalists, using the provided vision system is only mandatory, if a vision system is needed for the application. Proposed applications may include additional hardware, such as sensors or other mechatronic components to be developed and provided by the applicants. Newly introduced components should provide a clear vision how they can easily blend in with the hardware provided by KUKA.

Each finalist team will sign an agreement with KUKA to implement its idea on the provided hardware. The teams will be invited to Augsburg to receive an initial training on the software and hardware and will be continuously technically supported and coached by KUKA experts to be more effective in the implementation phase. In winter 2022, on-site visits to the finalist teams are planned to support the teams in the preparation of the final presentation the fair.

Finally, the teams will be invited to a major industrial German fair in 2023 to present their applications and compete for the award in the final round. This will offer the participants the unique chance to present their work to the expert public, representatives from industry and research, the media and of course the judges. This exchange and the resulting contacts are often the starting point for further projects and collaborations.

The Innovation Award judges will determine the winner at the fair based on the assessment criteria below with a particular focus on quality and robustness of the presented solutions. Presenting the solution on the fair is a mandatory activity for competing in the Innovation Award. The winner of the KUKA Innovation Award and the



€20,000 financial prize will be selected and announced on the fair ground during the award ceremony at the fair ground.

## Outline and content of the proposals

The proposal should be aligned along the following structure:

- 1. Cover page**
  - a. Project full title and acronym/short team name
  - b. Applicant contact data (name and institution of project leader)
  - c. Summary of project proposal
- 2. Team description**
  - a. Institution/ laboratory/ group description
  - b. Background in robot-based automation (especially experience with sensitive and collaborative robots, projects, knowledge and track record the project capitalizes on)
- 3. Motivation and objectives**
  - a. Description of the intended use-case, challenges and relevance to potential markets
  - b. Objectives of the proposed work with an outline of the advances focusing on the challenge topic
- 4. Approach and realization**
  - a. Technical details of the proposed solution including a description why the proposed solution is promising as well as a pictures and videos of the current stage of development (ideally, an already established proof of concept in a working system)
  - b. Work plan for the duration of the competition (from the announcement of the finalists in May 2022 until the fair in 2023). Please list suitable milestones and expected use of resources.
  - c. Initial concept for the system design and a list of to be used hardware and software (libraries, licenses)
- 5. Targeted results and measures of success**
  - a. Results regarding the topic of the award
  - b. Assessment of technology readiness level of the proposed solution including its scalability, the reusability of used and developed components and risk assessment
  - c. Outline of possible integration/ cooperation with KUKA regarding the proposed systems/ methods
- 6. Analysis of economic impact and competitive advantages**
  - a. Economic impact on potential markets



- b. Summary of transferable/ licensable technology and time-to-market estimation
- c. Competitive advantage with respect to existing solutions (research/ technology / applications)

Award applications must be written in English and are limited to 12 pages (including the cover page) addressing the items above in a balanced manner. Teams are encouraged to provide video material as part of their application. Other supportive material, e.g. publications, should be linked to the application.

## **KUKA Innovation Award judges**

Prof. Dr. Alin Albu-Schäffer (Director of Robotics and Mechatronics Institute, DLR)

Evan Ackermann (Senior Editor, IEEE Spectrum)

Dr. Kristina Wagner (Vice President Corporate Research & Director Robot X-perience, KUKA)

Prof. Dr. Oussama Khatib (Director of Robotics Lab, Stanford University)

Prof. Dr. Ir. Stefano Stramigioli (Director of the Robotics and Mechatronics Lab, University of Twente)

Zlatina Deggendorfer (Head of Application Portfolio Management, KUKA)

## **Schedule**

08.05.2022	Application deadline
16.05.2022	Pitches of top 10 applications
20.05.2022	Announcement of finalists
April-June 2023	Setup of applications with final presentation at a German fair

## **Contact and further information**

For further questions and to submit the application: [innovationaward@kuka.com](mailto:innovationaward@kuka.com)

Find out more about the KUKA Innovation Award: [www.kuka.com/InnovationAward2023](http://www.kuka.com/InnovationAward2023)



## Terms and Conditions

### Eligibility

You are eligible to enter the competition if you meet the following requirements at time of entry:

- You are affiliated to a legal entity (company, university or research institute etc.), which is signing an agreement with KUKA that is handling the lending of the provided hardware and all financial issues regarding your participation.
- You are not an employee or intern of KUKA AG or their affiliated companies.
- You are not involved in any part of the execution or administration of this competition.
- You are not an immediate family member (parent, sibling, spouse, and child) or household member of a KUKA employee or an employee of KUKA affiliated companies, or a person involved in any part of the administration and execution of this competition.

### Confidentiality

KUKA, the judges and the experts assigned will treat the submitted project material confidential. Intellectual Property (IP) generated in the competition belongs to the participants. If KUKA and a participant are interested in a technology transfer or access to IP, a separate agreement between the participant concerned and KUKA will be established.

### Lending agreement

Granting of access to the KUKA robot and the vision sensor shall be conditional upon signing a lending agreement. Such lending agreement may not be signed by private individuals, but only by an authorized representative of a legal entity (company, university or research institute etc.). By signing the lending agreement, the lender agrees to do its utmost to fulfil the work plan described in the Award proposal. The costs for fulfilling the work plan as described in the proposal including personnel and additionally required hardware and software must be borne by the finalists. All loan and transportation costs are borne by KUKA.

### Insurance

The transport of the robot is insured by KUKA. Apart from this KUKA does not provide any kind of insurance. Finalists shall insure themselves (liability insurance with coverage of approx. 3.000.000 €) and their own equipment as well the provided hardware (property insurance with coverage depending on the value of the hardware) against any possible costs and consequences caused by loss, theft, illness, accident, personal liability, etc.



## **Prize**

No transfer, substitution or cash equivalent for travel and accommodation grants, sponsored access to hardware and prizes is allowed, except at KUKA' sole discretion. The prize money can only be transferred to legal entities; transfers to individual persons cannot be made. KUKA reserves the right to substitute a prize, in whole or in part, of equal or greater monetary value if a prize cannot be awarded, in whole or in part, as described for any reason.

## **Copyright**

Applications shall only include material that you own or where permission has been granted by the copyright/trademark owner. Applications and robot programs may not include copyrighted materials (such as source code, user interface, background music, images or video) unless you own or have permission to use the materials. The team must provide a list of non-proprietary tools, libraries and source codes used.

## **Reimbursement of travelling and exhibition expenses**

Applicants bear their own costs with the exception of costs explicitly listed here. KUKA will cover all costs related to lending, servicing, and supporting the KUKA robot in the context of the KUKA Innovation Award.

KUKA offers a travel and accommodation grant to reduce the financial burden of finalist teams in the context of the demonstrations at the fair covering the following items:

- Accommodation at the fair location for up to three members per team (arranged by KUKA)
- Incurred travel expenses up to 1200 € for German teams, 1900 € for European teams and up to 3300 € for non-European teams
- Transportation costs for equipment (arranged by KUKA)

This grant can be accessed by the finalist teams' legal entity via handing in a cost claim with all receipts of the costs incurred by three members per team after the fair.

On accepting the invitation for participating in the Award finals at the fair, the teams agree to set up and present their solutions to the expert public, the judges and KUKA top management and senior developers. The costs for presentations at the fair relating to exhibition space, designing a representative booth and supporting the setup and dismantling of booths and equipment will be borne by KUKA.

KUKA reserves the right to reclaim any surplus payment or money paid in error. Furthermore, KUKA may cancel the accommodation and travel grant and demand payment repayment, if the financial support was obtained under false pretenses, if not used for the intended purpose, if any obligation regarding the final is not fulfilled, or for any other sound reason.



## FAQ

### Where can I get more information on the provided hardware?

- [LBR iisy](#)
- [Roboception vision sensor](#)

### Can other robots than the LBR iisy be used in this competition?

Using and integrating the final demonstrator with the LBR iisy is mandatory. However, other robots can be used as well, e.g. in the preparatory phase and in addition to the hardware provided by KUKA. Proposals may be submitted using other robots, but applicants should explain how they intend to transfer their technology developments to the hardware provided by KUKA.

### Can other vision sensors than the Roboception vision sensor be used in this competition?

Using and integrating the final demonstrator with the Roboception vision sensor is mandatory if a vision sensor is needed for the demonstrator. However, other vision sensors can be used as well, e.g. in the preparatory phase and in addition to the hardware provided by KUKA.

### Who can participate?

Teams and individuals from legal entities (companies, universities or research institutes etc.) may participate. Proposals can only be made in the name of the legal entity. Lending agreements and financial issues can only be handled with the participant's legal entity.

### Why should I participate?

The competition leading to the KUKA Innovation Award may allow you

- to access KUKA's latest robot hardware free of charge,
- to receive a KUKA training on the hardware and software as well as a coaching for the duration of the award,
- to present your solutions to the expert public at one of the world's most important industrial trade shows,
- to present your solutions to KUKA top management and senior developers,
- to engage in a closer collaboration and technology transfer of your innovative technology to one of the world leaders in robot-based automation (subject to a separate license agreement),
- to travel a major fair in Germany for presenting your work at KUKA's expense,
- to use this opportunity to meet and engage with other parties interested in your work,
- to win €20,000!

### Data privacy

To process applications and to provide continuous support, KUKA collects and electronically stores the data submitted by applicants. These data include personal



information (name, address, date of birth, nationality, phone numbers and e-mail addresses and organization of the applicants) as well as information on the project and the support granted.

KUKA may publish the names of the participating teams, their project titles, project videos and project abstracts on KUKA websites, via social media, in press releases and in printed publications.