

CALL FOR PARTICIPATION

The **Ultrahaptics Student Challenge** jointly promoted by ULTRAHAPTICS and EUROHAPTICS 2018 invites participants from all over the world to develop and demonstrate new applications of touch interfaces using the Ultrahaptics Development Kit.

In this challenge, students will be provided with an advanced hardware development platform and an API, and will be tasked with exploring new applications in the field of mid-air haptics with special interest in the broad areas of: *AR/VR, Entertainment, Communication, Healthcare, or Security.*

Main dates

Proposal submission	30 th November 2017
Announcement of selected proposals	15 th December 2017
Progress reports from selected teams	February and May 2018
EHC 2018 Competition in Pisa (Italy)	13 th -16 th June 2018

How to Participate

To participate, each team must submit a 3-page pdf proposal via email to EHC2018@ultrahaptics.com (see full submission information below) by November 30, 2017.

Selection Process

Five teams will be chosen and notified by December 15, 2017.

Ultrahaptics will allocate one TOUCH Development Kit (UHDK5) to each of the 5 selected teams in December 2017. The selected teams will be given access to supporting documents, the SDK, and example code.

Competition Demo and Award

The **Ultrahaptics Student Challenge** will take place during the EuroHaptics 2018 conference in Pisa (Italy), from 13th-16th June 2018. Each team will demonstrate their final results at the conference, where a panel of expert judges will evaluate them. The winner of the Student Challenge will be announced during the award ceremony. The

winner will be awarded **1000€ and an internship program sponsored** by Ultrahaptics (internship subject to proof of eligibility to work in the UK).

Qualifications:

The challenge is open to undergraduate and graduate students. Teams may have between two and four members. Teams can enlist professors, teachers, and professionals as advisors, but the work must be done by the students only, and all team members must be eligible to register for the conference in the student category.

At least one member of each team must attend the full conference to present the team's application(s) and will be responsible for any applicable conference registration fees. **EuroHaptics 2018 organizers will provide support for travel (300€ European teams, 500€ non-European teams) and accommodation to 1 participant per team.** All attending students must register for the conference. We suggest students seek funding opportunities for their attendance as early as possible, such as asking for sponsorship from local research labs, applying for student volunteerships, and watching out for possible student travel grants.

The Challenge

Ultrahaptics uses focused ultrasound at 40 kHz to create up to 4 pressure points of about 8mm in diameter, and each pressure point can be touched and felt in mid-air. These points can be dynamically moved in 3D space forming different geometrical shapes, or modulated over time to give the sensation of tapping or button clicking. Students are invited to explore the uses of this new technology, and propose novel mid-air haptic environments and applications.

We encourage teams to structure their applications and environments around the broad topics of: *AR/VR, Entertainment, Communication, Healthcare, or Security.*

Haptic interaction using the Ultrahaptics Development Kit must be a significant part of the application, i.e., applications should rely on the haptic feedback, rather than the haptic feedback being added post-hoc or in a nonessential way to an existing graphically-presented

environment. Teams can use other modalities, like visual and/or audio feedback along with the haptics.

Submission Requirements

Students must submit a **3-page** proposal document. The **pdf** document should contain the following:

- Team member's details (Name, Surname, degree)
- Team Contact email
- Project Name
- 30-word non-technical pitch
- 150-word abstract
- Project description with a roadmap and concept diagrams
- **All student applicants should also complete and submit the Participation Agreement found at:**

<https://goo.gl/forms/8hbDSOPtyEEC92NB3>

Submissions should be made via email with subject "Proposal" to: EHC2018@ultrahaptics.com by the 30th of November 2017.

You should receive an automated confirmation email.

Judging Criteria

Applications will be judged on the following three categories:

- Haptics feedback quality, i.e., the effective use of haptics, and device capabilities – Does the application take maximal advantage of what the device can do, and gracefully accommodate its limits?
- Originality, creativity and engagement – How innovative, inspiring, original and engaging is the application and the team's approach
- Delivery and presentation – The environment or application must convey the main idea in a clear and transparent manner, highlighting the technical advantages and difficulties of the challenge.

Hardware:

The Ultrahaptics TOUCH Development Kit (UHDK5) contains:

- The development kit hardware: a 192 (14×14) transducer array and control board, mounted in a cradle with a Leap Motion Controller device.
- Multi-regional power supply, USB cables and compliance, warranty and health and safety booklet.



The UHDK5 supports “Amplitude Modulation” API and can produce mid-air haptics with up to four simultaneous *Control Points* to a range of 40cm. The positions of these can be updated in real-time at a rate of up to 400 times a second. The SDK contains a full API and suite of example code (C++) for you to work through to create your own applications. We also provide C# libraries for integration within the Unity Game Development platform.

For more information, contact: EHC2018@ultrahaptics.com

Detailed information about the ULTRAHAPTICS TOUCH Development Kit (UHDK5) and the SDK is available here:

<https://www.ultrahaptics.com/products/touch-development-kit>

<https://developer.ultrahaptics.com/faq/sdk>

Writing a Good Submission:

Hands-on educational activities help students learn concepts by linking abstract concepts to students’ physical experience. The Ultrahaptics Development Kit allows students to explore the new abilities of the non-contact mid-air haptic solutions. There are many different application concepts that could be translated to mid-air. A good submission will describe a creative enhanced haptic environment in which a student will use ULTRAHAPTICS Development Kit.

Your 3-page proposal should help us understand:

- The concept of your application and why it is unique.
- What your application will consist of and how a user will interact with it.
- Why a mid-air haptic device is appropriate for your application.
- A roadmap with key milestones for development and how your team’s skills can achieve them.

Good design requires iteration, and we don’t expect your final results to be exactly as you describe in your submission, but your concept description should be well thought out, and it should have a plausible chance of working.

Past examples of successful submissions can be found from the 2017 and 2016 EuroHaptics Student Innovation Challenge websites.