



**LUND**  
UNIVERSITY

# MSc in Virtual Reality and Augmented Reality

LUND UNIVERSITY | SWEDEN

- Master of Science in Virtual Reality and Augmented Reality
- 2 years, full-time, 120 ECTS credits
- Faculty of Engineering
- Lund Campus
- Application deadline: January 2024
- Programme start: August 2024

## PROGRAMME OVERVIEW

The demand for competence within the fields of Virtual Reality (VR) and Augmented Reality (AR) is rapidly increasing. This Master's programme offers a truly holistic approach to VR/AR technology in a world-class, multi-disciplinary research and learning environment where students are part of exploring new possibilities. Recent advances in computer graphics, sensors and screen technology give us unprecedented possibilities to completely immerse humans in virtual environments or augment real environments. VR/AR constitute a completely new computing paradigm finding its way into applications for industry, health care, education, entertainment etc. This Master's programme aims at educating qualified professionals who can design, implement and evaluate VR and AR applications while also considering the ethical, cultural, and social implications of such technology.

## PROGRAMME STRUCTURE

Courses in e.g. computer graphics, image analysis, interaction design and VR/AR are blended into a unified learning experience that covers the whole range from enabling technologies to the final user experience of VR/AR applications. The core of the programme is the assumption that VR/AR technology is best learned when students fuse theoretical knowledge and technical skills with design thinking. Active experimentation is a fundamental pillar of the Master's programme, with laboratory work and project assignments in Lund University's top tier laboratories. Examples of concrete content in the Master's programme include:

- Computer graphics and its implications for VR/AR applications
- Image analysis and its applications in VR/AR tracking
- 3D interaction in VR/AR applications
- User-centred design methodology for VR/AR development

The demand for engineers specialised in VR/AR technology is increasing rapidly and local and global companies are strongly committed to contributing to the Master's programme in var-

ious ways. This creates huge opportunities for project assignments and master thesis projects, solving real world problems by applying VR/AR technology in a creative and innovative manner.

## PROGRAMME MODULES/COURSES

The programme is carefully tailored and only contains mainly mandatory courses.

- **Semester 1:** Image analysis (7.5 credits), Computer graphics (7.5), Interaction design (7.5), High performance computer graphics (7.5)
- **Semester 2:** Virtual Reality in theory and practice (7.5), Computer vision (7.5), Theoretical perspectives in interaction design (7.5), Universal design, theory and project (7.5)
- **Semester 3:** Augmented reality interaction (7.5), Extended reality (XR), continuation course (7.5), Working environment project (7.5) and one of the two mandatory-electives; Usability evaluation (7.5) or Modelling and learning from data (7.5)
- **Semester 4:** Master degree project (30)

Detailed programme overview and course content: [www.lth.se/english/master-programme-structure/vrar/](http://www.lth.se/english/master-programme-structure/vrar/)

## CAREER PROSPECTS

Students graduating from the Master's Programme in Virtual Reality and Augmented Reality will be extremely attractive for industry in the near future. Large tech companies see VR/AR as the next natural step in computing. At the forefront of development is Meta (former Facebook), with its vision of "the Metaverse", a network of virtual worlds focused on social connection, believed by many to be the future of the Internet. There is a strong development towards small and medium-sized enterprises (SME) specialised in VR/AR technology based on a quickly growing demand for such solutions from traditional manufacturing companies as Volkswagen Group, TetraPak and Atlas Copco. Local examples of SMEs with strong VR/AR focus are OneReality, Warpin Media, Devoteam Creative Tech and Virtuall Design.

The VR/AR research field is growing quickly, providing excellent opportunities for an academic career. The number of doctoral student positions is increasing all over the world and the Master's programme provides qualifications for research studies at PhD level.



## ENTRY REQUIREMENTS AND HOW TO APPLY

### Entry requirements

A Bachelor's degree in computer science, computer engineering, or equivalent. Completed courses, in dedicated mathematics (including calculus in one and several variables, linear algebra, systems and transforms and probability theory and statistics) of at least 30 credits/ECTS, and basic skills in object-oriented programming (at least one course). English level 6.

### How to apply

**1. Apply online:** Go to [www.lunduniversity.lu.se/virtual-reality](http://www.lunduniversity.lu.se/virtual-reality). Click on "Apply" and follow the instructions for the online application at [www.universityadmissions.se](http://www.universityadmissions.se), the Swedish national application website. Rank the chosen programmes in order of preference.

**2. Submit your supporting documents:**

- **General supporting documents:** Check what documents you need to submit (i.e. official transcripts, degree diploma/proof of expected graduation, translations, proof of English, passport) and how you need to submit them at [www.universityadmissions.se](http://www.universityadmissions.se).

- **Programme-specific supporting documents:** For information on programme-specific documentation, please check the programme webpage.

**3. Pay the application fee (when applicable)**

### Tuition fees

Tuition fee SEK 170 000 per year for non-EU/EEA citizens. No fee for EU/EEA citizens. See [www.lunduniversity.lu.se](http://www.lunduniversity.lu.se) for details on tuition fees.

### Selection criteria/additional information

The selection is based on academic qualifications.

## ABOUT THE FACULTY OF ENGINEERING

The Faculty of Engineering, LTH, is a place for dreams and discoveries. We inspire creative development of technology,

architecture and design and teach some of Sweden's most attractive Master's programmes, all built on a broad research base. LTH is among the leading engineering faculties in Europe with nearly 10 000 students. Over 1 000 researchers at LTH work hard to improve the quality of life for people and promote more careful use of the Earth's resources. A world record in 5G technology, solar cell-driven water purification, early cancer diagnosis, nanotechnology for more efficient solar panels, and a health-promoting oat drink are some of the innovations developed at LTH. Together we explore and create – for the benefit of the world.

## ABOUT LUND UNIVERSITY

Lund University was founded in 1666 and is repeatedly ranked among the world's top universities. The University has around 45 000 students and more than 8 000 staff based in Lund, Helsingborg and Malmö. We are united in our efforts to understand, explain and improve our world and the human condition.

Lund is considered one of the most popular study locations in Sweden. The University offers one of the broadest ranges of programmes and courses in Scandinavia, based on cross-disciplinary and cutting-edge research. The unique disciplinary range encourages boundary-crossing collaborations both within academia and with wider society, creating great conditions for scientific breakthroughs and innovations. The University has a distinct international profile, with partner universities in approximately 75 countries.

Lund University has an annual turnover of EUR 892 million, of which two-thirds go to research in our nine faculties, enabling us to offer one of the strongest and broadest ranges of research in Scandinavia.

## CONTACT

Programme webpage:

[www.lunduniversity.lu.se/virtual-reality](http://www.lunduniversity.lu.se/virtual-reality)

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