



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 2023
- Programme start: August 2023

PROGRAMME OVERVIEW

Recent advances in computer graphics, sensors and screen technology give us unprecedented possibilities to completely immerse humans in virtual environments or augment real environments. Virtual Reality (VR) and Augmented Reality (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

The Master's programme offers a truly holistic approach to VR and AR technology in a world-class, multi-disciplinary research and learning environment. Courses in e.g. computer graphics, image analysis, interaction design, VR and 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. At the core of the master's programme is the assumption that VR/AR technology is best learned when students fuse theoretical knowledge and technical skills with design thinking. This specifically means that 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. For this reason, local and global companies are strongly committed to contributing to the master's programme in various ways. Most importantly, this means huge opportunities to make project assignments and master thesis

for companies, 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 mandatory courses.

- **Semester 1:** Image analysis (7.5), Computer graphics (7.5 credits), 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:** Usability testing (7.5), Augmented reality interaction (7.5), Extended reality, continuation course (7.5), Project course (7.5)
- **Semester 4:** Master degree project (30)

Detailed programme overview and course content: 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. The big tech companies see VR and AR as the next natural step in computing. At the forefront of development is Facebook, which recently changed name to Meta to signalise the company's commitment to "the Metaverse", a network of virtual worlds focused on social connection, believed by many to be the future of the Internet. Also, there is a strong development towards small and medium-sized enterprises (SME) specialised in VR/AR technology. The rationale here is a quickly growing demand for VR/AR solutions from traditional manufacturing companies such as Volkswagen Group, TetraPak and Atlas Copco.

Some local examples of SMEs with strong VR/AR focus include OneReality, Warpin Media, Devoteam Creative Tech and Virtuall Design. Also, 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 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. Click on "Apply" and follow the instructions for the online application at 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.
 - **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 145 000 per year for non-EU/EEA citizens. No fee for EU/EEA citizens. See 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 100 universities. The University has around 46 000 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 70 countries.

CONTACT

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Learn more at www.lunduniversity.lu.se
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