ABOUT GHENT UNIVERSITY

Ghent University is a world of its own. Employing more than 8,000 people, it is actively involved in education and research, management and administration, as well as technical and social service provision on a daily basis. It is one of the largest, most exciting employers in the area and offers great career opportunities. With 11 faculties and more than 80 departments offering state-of-the-art study programmes grounded in research in a wide range of academic fields, Ghent University is a logical choice for its staff and students.

YOUR TASKS

- **MusiXR** is an interdisciplinary research project aimed at developing and studying realistic musical concert experiences in extended reality (XR), encompassing virtual, augmented, and mixed reality. The project focuses on **improving the simulation of room acoustics in XR musical environments** (cf. 'auralization'), in combination with obtaining a better understanding of the behavior, cognition, and emotion of users (musicians and listeners) engaged in such XR music concert experiences.
- The candidates main task is **the research, development, integration and empirical testing of spatial sound engines**, starting with a **hybrid engine.** The idea here is to split the rendering into three components: direct path, early reflections and late reflections and properly render each component. The goal is to find an optimal rendering such that it improves musical experiences and the feeling of presence for individuals or groups.
- The research will be conducted in the **Art and Science Interaction Lab (ASIL)** at Ghent University (https://www.ugent.be/lw/kunstwetenschappen/ipem/en/services/asil). The ASIL is a lively interdisciplinary research facility, equipped with, amongst others, an 80-speaker 3D setup, an advanced motion capture system, EEG/fNIRS systems, movement and physiological sensors, and wireless VR technologies.
- The project is supervised by **Pieter-Jan Maes** (pieterjan.maes@ugent.be) and **Bart Moens** (bart.moens@ugent.be) from IPEM, UGent, and **Nilesh Madhu** (nilesh.madhu@ugent.be) from IDLab, UGent.

WHAT WE ARE LOOKING FOR

The ideal candidate should be a talented programmer with expertise in audio engineering and an interest in acoustics. We value candidates with:

- An academic Master's degree or equivalent (at the latest on 30th of september, 2022), in any of the following branches: Computer science, Audio Engineering, Sound Engineering, Acoustics or equivalent.
- Excellent knowledge and experience in programming in C++, C# and Python.
- Experience in audio engineering & signal processing is a big plus.
- Interest in empirical research.
- Interest in the following domains; experience is a plus:
    o GPU programming (cuda, openMP)
    o Real-time audio processing (in Python/C++/MaxMSP/PD)
    o Spatial sound (WFS, Ambisonics, binaural)
    o Acoustics (reverb, RT's, impulse response)
    o Music production in DAW's: Ableton, Reaper, numerous VST's
    o 3D applications such as Unity

VACANCY PhD – MusiXR project – Improving room acoustics in XR musical environments
IPEM – IDLab – Ghent University, Belgium

Candidates are expected to have excellent communication skills and proficiency in written and oral English.

In addition, a problem-solving attitude and the ability to take initiative and work independently to deliver high-quality research is essential for a successful completion of the project. Since this is an interdisciplinary project, we also expect the candidates to be capable of critical self-reflection, demonstrate an eagerness to learn, and be a team-player.

You already know you are a good candidate if you clap your hands when entering an interesting large space.

WHAT WE CAN OFFER YOU

- **Full-time PhD scholarship for 4 years** (coupled to a yearly positive evaluation) at Ghent University.
- A pleasant work climate and collegial atmosphere in an international and interdisciplinary research team (IPEM and IDLab).
- Support by experienced (international) researchers.
- Your remuneration will be determined by salary scale WM1. Click here for more information about our salary scales.
- All Ghent University staff members enjoy a number of benefits, such as a wide range of training and education opportunities, 35 days of holiday leave (on an annual basis for a full-time job) supplemented by annual fixed bridge days, a bicycle allowance and eco vouchers. Click here for a complete overview of all the staff benefits (in Dutch).

INTERESTED?

This position is **open** and **immediately available**. We will review applicants on a *rolling basis* until we find the best candidate. However we set a *final application deadline* for the end of September, 2022. We will not accept applications after this deadline.

Your application must include the following documents:

- your CV and an overview of your study results
- your application/motivation letter (max 2 pages)
- a transcript of the required degree (if already in your possession). If you have a foreign diploma in a language other than our national languages (Dutch, French or German) or English, please add a translation in one of the mentioned languages.
- an overview of your study results (bachelor's and master's)
- You may also add other relevant documents such as a reference letter, certificate of employment, etc.

Please send your completed application (as a *single pdf file*, maximum size of 10MB) to Prof. Pieter-Jan Maes (pieterjan.maes@ugent.be). Please set the subject of your email as "MUSIXR – Application: <firstname> <lastname>".

Ghent University maintains an equal opportunities and diversity policy, so we encourage applications from qualified individuals from all backgrounds.

MORE INFORMATION

If you need more information about this vacancy, please contact Prof. Pieter-Jan Maes (pieterjan.maes@ugent.be). Please set your subject as "MUSIXR – Query".