



UBISOFT

R&D Programmer Assistant - Real-time surface-based Neural Radiance Fields – La Forge (6 months internship)

Bordeaux, France

Intern

Flexible Working Organization: Hybrid

Company Description

About Ubisoft

Ubisoft's 20,000 team members, working across more than 30 countries around the world, are bound by a common mission to enrich players' lives with original and memorable gaming experiences. Their commitment and talent have brought to life many acclaimed franchises such as Assassin's Creed, Far Cry, Watch Dogs, Just Dance, Rainbow Six, and many more to come. Ubisoft is an equal opportunity employer that believes diverse backgrounds and perspectives are key to creating worlds where both players and teams can thrive and express themselves. If you are excited about solving game-changing challenges, cutting edge technologies and pushing the boundaries of entertainment, we invite you to join our journey and help us create the unknown.

Ubisoft Bordeaux

Founded in September 2017, Ubisoft Bordeaux works with passion on the biggest AAA's game in order to offer the best gaming experiences to our players. Today, the studio has more than 400 talents, from 15 different nationalities, who work on licenses such as Assassin's Creed, Beyond Good & Evil 2, plus other unannounced free-to-play games. We are also working on exciting technologies with the Anvil team, Online services teams and with La Forge who seek to validate the value of technological innovations.

La Forge

As Ubisoft's research and development group, La Forge brings together experts from the industry and academic sector to prototype technological innovations and improve the game-making process. With this focus on applied research, we aim to fill the gap between theory and practice, while contributing to solving real-world problems through scientific publications.

Job Description

Neural Radiance Fields (NeRFs) have garnered significant attention in recent years due to their remarkable ability to represent scenes and objects with an unprecedented level of realism. This makes it possible to generate highly detailed, photorealistic renderings.

However, these techniques are inherently tied to a volumetric rendering framework. In other words, they work by modeling the entire volume of a scene or object, which poses a challenge when it comes to practical real-time applications, especially at a large scale. The sheer computational demands of volumetric rendering make NeRFs less than ideal for deployment in real-time environments, such as video game engines.

The goal of this internship is to bridge this gap between the outstanding rendering capabilities of NeRFs and the real-time demands of applications like video games. We aim to develop a surface-based representation that can enable the real-time rendering of NeRFs within a video game engine. This can result in a significant boost in the level of detail and overall appearance of 3D objects within the game, providing players with a much more immersive and visually stunning gaming experience.

[1] Tewari, Ayush, Justus Thies, Ben Mildenhall, Pratul Srinivasan, Edgar Tretschk, Wang Yifan, Christoph Lassner et al. "Advances in neural rendering." *In Computer Graphics Forum*, vol. 41, no. 2.

[2] Liu, Ruiyang, Jinxu Xiang, Bowen Zhao, Ran Zhang, Jingyi Yu, and Changxi Zheng. "Neural Impostor: Editing Neural Radiance Fields with Explicit Shape Manipulation." *arXiv preprint arXiv:2310.05391* (2023).

[3] Kuznetsov, Alexandr. "NeuMIP: Multi-resolution neural materials." *ACM Transactions on Graphics (TOG)* 40, no. 4 (2021).

[4] Kerbl, Bernhard, Georgios Kopanas, Thomas Leimkühler, and George Drettakis. "3d gaussian splatting for real-time radiance field rendering." *ACM Transactions on Graphics (ToG)* 42, no. 4 (2023): 1-14.

Qualifications

- You are a last year student at an engineering school or university research master.
- You have skills in machine learning.
- Knowledge of computer graphics is a plus.
- Your level of English allows you to work in an international team and to communicate easily with non-French speakers.

Skills and competencies show up in different forms and can be based on different experiences, that's why we strongly encourage you to apply even though you may not have all the requirements listed above.

Additional Information

Process:

- Phone Interview with a recruiter
- Technical assesement
- Interview(s) with our internal teams

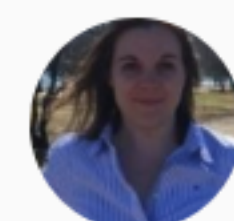
If your application is not retained, you will receive a negative answer.

At Ubisoft, you can come as you are. We embrace diversity in all its forms. We're committed to fostering a work environment that is inclusive and respectful of all differences, we value diversity at our company and do not discriminate on the basis of race, ethnicity, religion, gender, sexual orientation, age or disability status. All personal informations will be treated as confidential according to the Employment Equity act.

Check out [this guide](#) to help you with your application, and learn about our actions to encourage more diversity and inclusion.



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Posted by
Marie Piquot

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