Math/Physics Intern

Ubisoft La Forge is a prototyping space where ideas on technology, originating from a collaboration between university research and production teams, are brought to life.

The incumbent will be responsible for designing, implementing and evaluating optimization techniques used in identification of dynamics systems. The intern will be working on sampling-based optimization methods, modeling the nonlinear physical system such as fluid simulation, cloth simulation and robotic motion (multi-body characters). The focus will be on numerical methods involving large sets of data and solving regression problems (machine learning). The goal is to build fast prototypes that approximate and replace physics-based simulation of passive dynamical systems in video games with a satisfying level of physical plausibility.

Responsibilities

The main and routine tasks of the Math/Physics intern are to:

- Implement algorithms from the state-of-the-art robotics, mechanics and computer animation literature;
- Setup experiments to evaluate such algorithms and refine them;
- Report on the results to the team, through written analyses and oral presentations;
- Profile and optimize the implementations;
- Keep track of advances in relevant research communities, in terms of algorithms, software libraries and hardware;
- Identify new opportunities of applying such implementations to video games;
- Program in a structured manner, respecting performance, maintenance, compatibility and portability requirements;
- Document the work for knowledge transfer purposes and allow users (from other fields) to understand how to use the new systems and functionality;

Training

University Degree, bachelor, master or PhD in at least one of the following fields:

- Applied Math and/or Physics;
- Computer Science;
The knowledge of any of the following topics will make a strong candidate:

- Machine Learning;
- Simulation and Control of Dynamical systems;
- Computer Graphics;

Tools

The intern needs to be familiar with at least one software package/language from each of the following two categories:

A) Mathematica, Matlab, Python (for implementing the optimization techniques)
B) C++, C, OpenGL (for rendering the results)

Skills

- Good analytical and summarizing skills;
- Solid basis in mathematics;
- Problem-solving skills;
- Autonomous and resourceful;
- Attention to detail;
- Flexible in the context of work;
- Very good interpersonal communication;
- Ability to work as part of a team;
- Ability to adapt to change;
- Results-oriented.

Please send your resume and project to Laurence Leboeuf, Laurence.leboeuf@ubisoft.com

About us

At Ubisoft Montreal, a preeminent developer of video games located in Montreal’s dynamic Mile-End neighbourhood since 1997, we offer a work environment unique in the industry for allowing you to build and cultivate games that are part of critically acclaimed, iconic AAA franchises of international repute.

When you join Ubi Montreal, you enter a community of passionate, extraordinary developers connected by their need to innovate, to be creative and to work with the latest technology. You’ll discover a world where employees enjoy constant career advancement, a supportive learning environment, and competitive compensation packages.

More than anything, at Ubi Montreal, you will regularly ship a variety of big, quality titles – Assassin’s Creed, Far Cry, Rainbow Six, Watch_Dogs, For Honor and... well
we can't disclose all our secrets just yet... – and work with some of the most talented people in the industry