

Bachelor / Master Thesis

Unity 3D on Mobile for Wind Farms

Course of study: Computer Science
Kind of thesis: Programming
Programming language: Unity for Android / iOS
Start: 2025

Topic

The transformation of wind power into electrical power is usually grouped into wind farms in order to exploit considerations relative to economies of scale, such as lower installation and maintenance costs. But as costs decrease, grouping turbines leads to a reduction in the produced power because of the presence of wake effects within the wind farm. When a turbine extracts power from the wind, it generates a *wake* of turbulence that propagates downwind, such that the wind speed and therefore the power extracted by other turbines (which are placed in the wake) are reduced. In large wind farms wake effects lead to considerable power loss, and thus it is desirable to minimize them in order to maximize the expected power output. The wind farm layout optimization problem consists of finding the turbine positioning (wind farm layout) that maximizes the expected power production.

Tasks

To increase the acceptance of planned wind farms and to provide an intuition on its influence on the nature, we want to visualize a wind farm on a smartphone. Thus, the goal is to design an app using Unity.

Contact This project is offered by the *Theory of Hybrid Systems (i2)* research group headed by Prof. Dr. Erika Ábrahám and will be co-supervised by Dr. rer. nat. Pascal Richter. For further questions please contact us via email:

Dr. rer. nat. **Pascal Richter**
 Theory of Hybrid Systems (i2)

📍 Ahornstr. 55
 ✉ pascal.richter@rwth-aachen.de
 🌐 www.energy.rwth-aachen.de

performed by wind turbines, which are

