



Thesis Topic	Optimizing the location of LoRaWAN gateways (in cooperation with WEXNET)
Motivation	New wireless area networks are shaping the future of urban innovation in smart-cities, enabling seamless connectivity and service-oriented paradigms supported by a strong infrastructure. In such a scenario, it is important to optimize the location of LoRaWAN gateway antennas in order to guarantee the optimal signal coverage on large metropolitan areas, considering obstacles and other sources of disturbances and interferences. Although trial & error approaches are always possible, it is extremely expensive to reposition LoRa gateways several times.
Tasks	The thesis will address methods, models and tools to support the automatic or semi-automatic optimization of where to locate LoRaWAN gateway antennas in order to ensure the optimal signal coverage on large metropolitan areas. The student will survey the literature on optimal antenna positioning algorithms in related applications and develop his/her own approach taking into account relevant data, optimization objectives, and any other external constraints. He/she will also have the opportunity to work in a lab on real equipment.
Prerequisites *	Basic courses on computer science and network engineering. Good grades achieved in related exams. Availability to work in Wexnet lab (Växjö) part of the time. Good motivation and ability to work on real equipment. Knowledge of current network protocols would be a plus.
We offer you	<ul style="list-style-type: none">• <u>Preliminary meeting to clarify objectives and requirements.</u>• Support materials and lab equipment necessary to perform the required tasks.• Fruitful industry cooperation opportunity.
Time frame	-
Supervisor(s)	LNU supervisors TBD. Industry co-supervisors from WEXNET. For further information, please contact: <ul style="list-style-type: none">• Dr. Francesco Flammini, Master Thesis Coordinator, francesco.flammini@lnu.se• Dr. Diego Perez Palacin, Bachelor Thesis Coordinator, diego.perez@lnu.se Department of Computer Science and Media Technology