



INTERNSHIP PROGRAM FOR INTERNATIONAL STUDENTS

INTERNSHIP SUBJECT FORM

Name of the Host Laboratory	LIX – Computer Science Lab, Ecole Polytechnique
Website of the Host Laboratory	https://www.lix.polytechnique.fr https://www.epizeuxis.net
Research Group	Network Research Group
Internship Supervisor	Jiazi Yi jiazi.yi@polytechnique.edu
Internship Subject	A Security Study on LoRa Wireless Technology
Student's level	<input checked="" type="checkbox"/> Advanced Undergraduate Students (3 rd or 4 th year) <input checked="" type="checkbox"/> Master's students (1 st or 2 nd year) <input checked="" type="checkbox"/> PhD students
Proposed Duration	<input checked="" type="checkbox"/> 3 months <input checked="" type="checkbox"/> 4 months <input checked="" type="checkbox"/> 5 months <input checked="" type="checkbox"/> 6 months
Prerequisites	Major in computer science, network engineering, communication, electrical engineering or related fields. Good understanding and experiences in communication/network protocols, network simulation, programming (especially C/C++, Python, Java).
Internship description (max. 15 lines)	<p>Low-Power Wide-Area Networks (LPWANs) are networks connecting resource-constrained (low-power) devices over a wide area (with links up to several km long) with low-bandwidth connectivity, and for relatively low traffic rates. Large wireless sensor networks at urban or metropolitan scale or long-term monitoring deployments are examples of LPWANs — these are thus the natural framework for the Internet of Things. Since LPWANs involve features and constraints that are not typically addressed in classic wireless networking technologies (e.g. Wi-fi, cellular), new technologies are being proposed and developed to support IoT deployments. LoRa is one of the examples.</p> <p>This internship aims at exploring the security vulnerabilities of LoRa wireless technology. Using tools such as Soft Define Radio, reverse engineering, network spoofing to identify the possible threats to LoRa technology and propose corresponding countermeasures.</p>

The boxes marked with cross implies eligible