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Paris, August 12, 2025

Subject: Application for the PhD position "Indoor Localization for Patient Behavior Analysis in the Context of Connected Healthcare"

Dear Sir or Madam,

I am currently in the final year of my studies at the Institut Supérieur d'Électronique de Paris (ISEP) and will graduate in 2025 with an engineering degree (equivalent to a Master's degree in China), specializing in Wireless Communications and the Internet of Things. At present, I am completing my graduation internship at Orange (France Telecom), focusing on energy efficiency optimization in 5G core networks.

I am deeply interested in the PhD project "Indoor Localization for Patient Behavior Analysis in the Context of Connected Healthcare" as its research direction aligns closely with my academic background and research interests and is highly relevant to my long-term focus on smart healthcare and low-power communication technologies. This project, jointly conducted by ISEP and the University of the Chinese Academy of Sciences, represents a valuable opportunity to work in an international and interdisciplinary context, combining communication and artificial intelligence technologies with connected healthcare research.

During my studies at ISEP, I completed a graduation project on indoor localization based on RSSI fingerprinting, comparing the performance of Deep Neural Networks (DNN) and Graph Neural Networks (GNN) in terms of accuracy and computation time. The results demonstrated the potential advantages of GNNs in complex topological environments, allowing me to develop strong expertise in sensor data processing and indoor localization. These findings have been compiled into a scientific paper.

During my internship at Orange, I independently conducted a comparative study on the energy consumption of two 5G core networks (Free5GC and OAI) and performed source code-level optimizations to reduce system energy consumption. This work included building a complete energy measurement and analysis pipeline using Kepler, Prometheus, and Grafana, further strengthening my skills in network architecture, machine learning, and large-scale system deployment. Additionally, I participated in weekly meetings with colleagues to exchange progress and results, which enhanced my communication and collaboration skills.

Prior to this, I participated in multiple laboratory research projects and have consistently maintained a strong passion for scientific research. These experiences have equipped me with key qualities required for a PhD: autonomy, scientific rigor, the ability to work in multicultural environments, and mastery of advanced communication and AI technologies. I am confident in my ability to make a substantial contribution to your team and highly motivated to advance the application of indoor localization in smart healthcare.

Should you require any additional information for my application, please feel free to contact me. I look forward to your reply and extend my sincerest regards.

Yours sincerely,

Xiaofan Guo