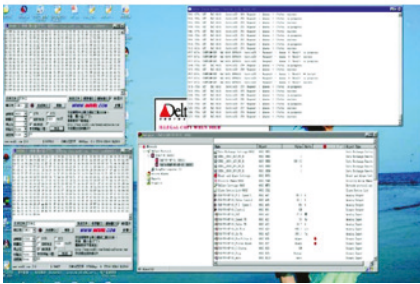


# Personalized Thermal-Comfort Platform for Smart Building

## 提升辦公室溫感舒適度的空調調節平台



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Heating, ventilation and air-conditioning (HVAC) system accounts for more than half of building energy consumption and leads to huge energy wastes. A Scalable Personalized Thermal-comfort (SPET) platform, which includes standardized data schema and SDK with adapters to harvest data of smart hardware and proactively guide building automation systems temperature setting services, analytic framework that optimize thermal comfort and energy conservation and visualization software package to show the thermal comfort of buildings, has been developed to quantitatively estimate the thermal comfort of any individual occupants or groups in daily operations. The research results have shown a preliminary version of the model can save energy for 18% and improve thermal comfort for 33.8%. SPET can benefit three industry sectors: 1) smart energy systems for buildings and homes; 2) provides new meanings of data to smart personal devices and smart hardware; and 3) provides top up services for building automation and services.

普遍來說，採用中央空調的辦公室溫度偏低，不但影響員工的舒適度，且浪費能源。然而，目前沒有任何機制能讓樓宇管理單位精準地量度辦公室內每位員工的溫感舒適度。有見及此，理大研究團隊開發了個人化的智能空調調節平台，先以人類生理學的溫感舒適模型為基礎，再收集中央空調感應器的數據，並透過智能手機獲得用戶對空調溫度的意見，例如熱、暖、微暖、適中、涼及冷等。平台根據收集到的數據，分析和計算出最舒適的溫度，然後自動調節空調。研究團隊於一間面積四十五平方米、每天平均有十三位員工上班的辦公室試行該平台。結果顯示平台有效運作，員工的溫感舒適度提高了33.8%，而室內平均溫度則上調了攝氏1.75度，節省接近20%的電能。



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