

From IoT to Cloud: Challenges in Vertical Intelligent Systems

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ABSTRACT

IoT, wearable devices, cloud computing, big data, and data mining are current buzzwords in the new wave of technologies. However, these seem to be far away from electronics or IC design area. At the same time, increasing process technology scaling provides more areas available not only for large scale processing cores, but also large on-chip caches and complicated inter-core communication. It is believed that systematic total solutions are essential to the success of enabling real values of IoT-based applications, thus imposing many research challenges on the vertical integration from IoT chip to cloud.

This talk primarily examines the problems of current IoT applications and their supported backup cloud services. We point out potential advantages of using many small embedded processors as a part of servers on chips to enable local intelligence and responsive data analysis for many big data applications while maintaining very low energy consumption. We envision new system architecture and software challenges about building vertical system integration of IoT and big data analysis for possible embedded and real-time data application scenarios.

簡歷：

學歷：

- 美國華盛頓大學 計算機科學與工程 博士 1990/09~1993/07
- 美國華盛頓大學 計算機科學與工程 碩士 1988/09~1990/08
- 台灣大學 資訊工程學士 1979/09~1983/06

經歷：

- 國立中正大學 資訊工程系 教授
- 美國 Intel, Microprocessor Research Lab Visiting Professor
- 國立中正大學 資訊工程系 副教授
- 王安電腦 系統軟體 工程師

重要成就：

- 領先研發出前瞻性 Multithreading/Multicore media 嵌入式處理器及其 SoC virtual platform
- 率先研發出超低功率 Virus detection processor design in mobile devices, 並獲得 ISSCC/DAC design contest 設計獎項。
- 歷年來共同發表國際頂尖會議論文共計 DAC 七篇, ISSCC 四篇論文
- 共計提出美國或台灣 15 項專利
- 歷年來論文發表獲 citations 累計達 2200 次 (Google scholar)