Natalie Cluck

CSCE221H Data Structures & Algorithms

Dr. Scott Schaefer

4/21/2015

Seminar Report #2

On Monday, April 20, 2015 at 4:10pm in the Bright Building at Texas A&M University, Ravi Iyer, Senior Principal Engineer, CTO and Director of New Business Initiatives (NBI) at Intel presented a CSE Distinguished Former Student Lecture. He received his B.S., M.S., and Ph.D. from Texas A&M. His presentation was entitled “From Servers to Embedded Systems: Taking Innovations from Research to Reality Technologies.”

Dr. Iyer described research challenges for wearables, devices, and cloud server platforms, which face similar challenges in managing power/performance efficiency, maintaining quality of service (QoS), and enabling innovative domain-specific uses. He focused on examples showing innovations at different stages from concept to reality, showing how quality of service can positively affect performance of multiple software applications running at the same time. He discussed quality of service solutions for datacenter servers, accelerator-rich architectures for emerging usage domains, and heterogeneous SoCs for low-end sensor nodes. He then discussed future prospects using the research.

From what I retained in my notes from the lecture, he mentioned combining general-purpose architecture research and domain-specific embedded research to formulate the “Architecture and Embedded Research Impact,” which is supposed to contribute to memory-allocation of higher and lower priority applications running on a machine. He mentioned different methods of distributing memory to higher priority applications to improve machine performance. Dr. Iyer emphasized that QoS can improve user-preference applications and fix the problem of background applications increasing execution time by 50%. He talked about cache monitoring and allocation technology. He talked about Cache QoS and Platform QoS, which is supposed to give preferential treatment for higher priority applications and give better overall performance.

After talking about QoS solutions, he discussed accelerator-rich architectures for emerging usage domains, and discussed “first, second, and third person” devices and their similarities regarding architecture.

From my personal opinion, I was completely lost throughout the entire presentation. He knew his material well, but he talked exceedingly fast, and my limited knowledge on the subject did not aid my attempt to understand the topic. Perhaps it would have been a better presentation if I had a background in the subject of QoS processes and device architecture.