Podcast: *ACM Bytecast*
Episode: Luiz André Barroso

Welcome to the *ACM Bytecast* podcast, where researchers, practitioners, and innovators share about their experiences, lessons, and future visions in the field of computing research. In this episode, host Rashmi Mohan is joined by Luiz Barroso, a Google fellow and Head of the office of Cross-Google Engineering, which is responsible for company-wide tech coordination. He is a published author, a prolific researcher, and most recently the winner of the 2020 ACM-IEEE CS Eckert-Mauchly Award for pioneering the design of warehouse-scale computing in the industry.

To begin, Luiz shares about his interest in computing and engineering which began when he was just 8 years old, observing his grandfather's ameteur radio hobby. As a Brazilian Native, he moved to the U.S. to obtain his PhD, and has been at Google for 20 years now. During his PhD, Luisz really became interested in computer architecture. He was also presented with the opportunity to do work which was not only researched based, but addressed real world problems.

Then, Luiz touches on the work he is most famous for, which are his contributions to warehouse computing. When he first joined Google in the early 2000's, the company was nowhere near the size it is today. In fact, the team was forced to be extra thrifty when building their own data centers, as they didn't have a large budget. Even today, Luiz says this thrifty way of thinking is very much still part of Google's DNA. Many newer companies are popping up who have the similar scales and needs which Google has, and they can take advantage of a solid infrastructure provided by good Cloud providers. Given the decline of Moore's Law, Luiz says that improvements we see coming from the circuit level today are nowhere near anything he experienced for the majority of his professional life.

Discussing his relatively late career change to come to Google, Luiz shares that he is often driven by areas of ignorance. This was the story of Google Maps and Earth, a team he joined with no prior experience. He speaks of his fascination with the concept of opening up the world to everyone with access to a phone or computer. Again, the team turned to thrift to be able to map even the most remote places in the world accurately and in real time.

Luiz reiterates that there are different ways of being successful in your craft. In his case, thanks to his engineering education, he has always trusted that he will always figure out a way to do things. To take a different path than the one you are currently on requires humility, and it isn't easy to go from an expert to a novice. But In Luiz's experience, you overcome these things when the reasons why you switched are based on excitement and passion. A team can often benefit from a person who, new to the craft, brings with them a fresh pair of eyes and a different perspective.

In the field of computing, Luiz is most looking forward to making machine learning more efficient and accessible for everyone. Additionally, he is keen on furthering online safety and ensuring that Google is the absolute safest place you can be on the internet.

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Timestamps:

0:40 - Host Rashmi Mohan introduces today's guest Luiz Barroso.

1:37 - Luiz shares about his journey in the field and role models along the way.

6:15 - Luiz discusses his experience and work during his PhD studies.

9:35 - Luiz discusses his most well-known work, warehouse computing.

12:46 - How their small budget played into many decisions made during the early stages of Google.

15:45 - Efficiency trends observed in many new companies and startups.

24:25 - What drew Luiz's interest in Google Maps and Earth?

29:40 - How to prepare yourself for a major career change.

33:18 - Discussing teamwork and the need for diversity on a team.

41:08 - What Luiz is most looking forward to in the coming years.

Links:

Learn more about Luiz André Barroso.

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