Podcast Title: *ACM Bytecast*
Episode Title: Leslie Lamport

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 Scott Hanselman is joined by Dr. Leslie Lamport who works in the field of Microsoft research. He has spent his last 60 years creating and thinking about computer science and software.

The episode begins with Leslie sharing about his journey into Microsoft. He shares how computer programming started out as something he only did in his spare time. However, overtime it became a more central part of his career and he began to pursue computer programming and research full time. Scott and Leslie then begin to talk about the differences and similarities between software engineering and computer science. Leslie discusses how in recent times, universities have begun to make a more distinct split between the two and shares how he thinks there is much to learn from both. Computer systems hold much precision and complexity, which means that knowledge on both sides of software engineering and computer science can provide meaningful experience.

Next, Scott asks Leslie about the mathematics that goes into his work and Leslie shares specifically about the math and logic in his own high level modeling software called TLA. He explains the goal behind this program to aim at correctness and in solving what he calls the Byzantine Generals Problem, which is when a computer system contains errors. TLA does this by writing higher level conceptions and testing it to find any errors present in the higher level. It is also aimed to look past simply coding errors into other areas such as design. Leslie also stresses the importance of thinking about what must go right instead of only thinking about what might go wrong.

Moving forward, Scott then asks Leslie to share about his own algorithm he created. Leslie discusses this algorithm and how it was created for distributed systems along with how it has been used to solve different problems. The inspiration behind this algorithm was simply practical considerations and one of the results was the building of digital signatures. He goes on to share how the building of distributed systems have changed since the 60's and 70's. Some of these changes occur simply in the problems that occur and the bugs and challenges that may arise.

The podcast concludes with Scott asking Leslie about a project he is looking forward to. Leslie shares a recent algorithm he has been working on and how it is acting as a bridge between two of his other algorithms. He goes on to discuss his own process of how he creates algorithms. Rather than it being a sudden idea that comes to his mind, he describes it more as an organic process that is lead by his goal in solving a problem.

Don't forget to like, share and subscribe!

0:28- Host introduces guest speaker, Leslie Lamport
1:43- Leslie shares about his journey to Microsoft research
3:29- The connection between computer science and software engineering
7:10- The importance of mathematics
11:40- The precision of computer systems
15:45- TLA's goal and process
18:15- How to approach errors in systems
20:45- Leslie talks about the Byzantine Generals Problem
23:00- Leslie shares about his algorithm for building distributed systems.
26:18- How distributed systems have changed and evolved over the years
30:40- Leslie shares about his newest project and algorithm
33:20- Leslie shares his process of creating an algorithm

Links:
Learn more about Leslie Lamport and visit his website
Learn more about ACM and *ACM Bytecast*
Follow ACM on Facebook, Twitter, Instagram, and LinkedIn