“Hashing: Theory, Implementation, and Applications”

Corey Montella
Ph.D. Candidate
Computer Science and Engineering Department
Lehigh University

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Abstract: Imagine you have two collections of text strings of various size and content. How could you quickly determine which strings from the first set are in the second set, if any? Likewise, how could you quickly determine which strings, are in the first set, but not in the second set? In this lecture we are going to learn about hashing, and how it can be used in data structures called hash tables to answer questions like these. We will gain an intuition behind the concept of hashing and why it is important, look at the implementation of various hashing algorithms, and implement a hash table of our own design. By the end of this lecture, you should understand what hash tables are, how they compare to other data structures we’ve looked at so far, and when to use them in your programs.

Bio: Corey is from Doylestown, Pennsylvania. He graduated in 2009 from Carnegie Mellon University with dual B.S. degrees in Physics and Business Administration. He began graduate studies at Lehigh University in 2010 under the direction of Prof. John Spletzer, where he worked on projects such as an autonomous wheelchair and an autonomous gliding aircraft that extracts energy from the wind to fly perpetually. In 2015 Corey took a hiatus from graduate studies to work in industry on a programming language called Eve, a greenfield look at programming as a practice that drew inspiration from such languages as Datalog and Smalltalk. In 2018 he returned to Lehigh to complete and defend his dissertation, titled “An End-to-End Platform for Autonomous Dynamic Soaring in Shear Winds”.

Free Pizza