

Principles Of Concurrent And Distributed Programming Download

Concurrency control

technology and computer science, especially in the fields of computer programming, operating systems, multiprocessors, and databases, concurrency control

In information technology and computer science, especially in the fields of computer programming, operating systems, multiprocessors, and databases, concurrency control ensures that correct results for concurrent operations are generated, while getting those results as quickly as possible.

Computer systems, both software and hardware, consist of modules, or components. Each component is designed to operate correctly, i.e., to obey or to meet certain consistency rules. When components that operate concurrently interact by messaging or by sharing accessed data (in memory or storage), a certain component's consistency may be violated by another component. The general area of concurrency control provides rules, methods, design methodologies, and theories to maintain the consistency of components...

List of educational programming languages

constraint, distributed, and concurrent programming. It has a canonical textbook, Concepts, Techniques, and Models of Computer Programming (2004), and a freely

An educational programming language (EPL) is a programming language used primarily as a learning tool, and a starting point before transitioning to more complex programming languages.

Inferno (operating system)

Bell Labs, to a wider range of devices and networks. Inferno is a distributed operating system based on three basic principles: Resources as files: all resources

Inferno is a distributed operating system started at Bell Labs and now developed and maintained by Vita Nuova Holdings as free software under the MIT License. Inferno was based on the experience gained with Plan 9 from Bell Labs, and the further research of Bell Labs into operating systems, languages, on-the-fly compilers, graphics, security, networking and portability. The name of the operating system, many of its associated programs, and that of the current company, were inspired by Dante Alighieri's Divine Comedy. In Italian, Inferno means "hell", of which there are nine circles in Dante's Divine Comedy.

ISP Formal Verification Tool

Ganesh Gopalakrishnan, and Robert M. Kirby, ISP: A Tool for Model Checking MPI Programs, Principles and Practices of Parallel Programming (PPoPP 2008) Archived

ISP ("In-situ Partial Order") is a tool for the formal verification of MPI programs developed within the School of Computing at the University of Utah. Like model checkers, such as SPIN, ISP verifies the complete state space of a system for a set of safety properties. However, unlike model checkers, ISP performs code level verification. This means that the tool verifies all relevant interleavings of a concurrent program by replaying the actual program code without building verification models. This idea was pioneered in a number of tools, notably by Godefroid, in his VeriSoft tool.

Other recent tools of this genre include the Java Pathfinder, Microsoft's CHES tool, and MODIST.

Relevant interleavings are computed using a customized dynamic partial order reduction algorithm called POE.

ISP has...

List of operating systems

eXecutive) MPX (Multi Programming eXecutive) IBM 8100 DPCX (Distributed Processing Control eXecutive) DPPX (Distributed Processing Programming Executive) IBM

This is a list of operating systems. Computer operating systems can be categorized by technology, ownership, licensing, working state, usage, and by many other characteristics. In practice, many of these groupings may overlap. Criteria for inclusion is notability, as shown either through an existing Wikipedia article or citation to a reliable source.

Software

translated one-to-one into machine code—as programming languages. Programs written in the high-level programming languages used to create software share

Software consists of computer programs that instruct the execution of a computer. Software also includes design documents and specifications.

The history of software is closely tied to the development of digital computers in the mid-20th century. Early programs were written in the machine language specific to the hardware. The introduction of high-level programming languages in 1958 allowed for more human-readable instructions, making software development easier and more portable across different computer architectures. Software in a programming language is run through a compiler or interpreter to execute on the architecture's hardware. Over time, software has become complex, owing to developments in networking, operating systems, and databases.

Software can generally be categorized into two...

Python (programming language)

object-oriented and functional programming. Guido van Rossum began working on Python in the late 1980s as a successor to the ABC programming language. Python 3.0

Python is a high-level, general-purpose programming language. Its design philosophy emphasizes code readability with the use of significant indentation.

Python is dynamically type-checked and garbage-collected. It supports multiple programming paradigms, including structured (particularly procedural), object-oriented and functional programming.

Guido van Rossum began working on Python in the late 1980s as a successor to the ABC programming language. Python 3.0, released in 2008, was a major revision not completely backward-compatible with earlier versions. Recent versions, such as Python 3.12, have added capabilities and keywords for typing (and more; e.g. increasing speed); helping with (optional) static typing. Currently only versions in the 3.x series are supported.

Python consistently ranks...

Real-time computing

Mordechai; "Principles of Concurrent and Distributed Programming", ch. 16, Prentice Hall, 1990, ISBN 0-13-711821-X, p. 164 Martin, James (1965). Programming Real-time

Real-time computing (RTC) is the computer science term for hardware and software systems subject to a "real-time constraint", for example from event to system response. Real-time programs must guarantee response within specified time constraints, often referred to as "deadlines".

The term "real-time" is also used in simulation to mean that the simulation's clock runs at the same speed as a real clock.

Real-time responses are often understood to be in the order of milliseconds, and sometimes microseconds. A system not specified as operating in real time cannot usually guarantee a response within any timeframe, although typical or expected response times may be given. Real-time processing fails if not completed within a specified deadline relative to an event; deadlines must always be met, regardless...

Communicating sequential processes

essentially a concurrent programming language rather than a process calculus. It had a substantially different syntax than later versions of CSP, did not

In computer science, communicating sequential processes (CSP) is a formal language for describing patterns of interaction in concurrent systems. It is a member of the family of mathematical theories of concurrency known as process algebras, or process calculi, based on message passing via channels. CSP was highly influential in the design of the occam programming language and also influenced the design of programming languages such as Limbo, RaftLib, Erlang, Go, Crystal, and Clojure's core.async.

CSP was first described by Tony Hoare in a 1978 article, and has since evolved substantially. CSP has been practically applied in industry as a tool for specifying and verifying the concurrent aspects of a variety of different systems, such as the T9000 Transputer, as well as a secure e-commerce system...

Web crawler

in C and released under the GPL. It is typically used to mirror Web and FTP sites. YaCy, a free distributed search engine, built on principles of peer-to-peer

Web crawler, sometimes called a spider or spiderbot and often shortened to crawler, is an Internet bot that systematically browses the World Wide Web and that is typically operated by search engines for the purpose of Web indexing (web spidering).

Web search engines and some other websites use Web crawling or spidering software to update their web content or indices of other sites' web content. Web crawlers copy pages for processing by a search engine, which indexes the downloaded pages so that users can search more efficiently.

Crawlers consume resources on visited systems and often visit sites unprompted. Issues of schedule, load, and "politeness" come into play when large collections of pages are accessed. Mechanisms exist for public sites not wishing to be crawled to make this known to...

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