# DICTIONARY

## OF

# COMPUTER
# SCIENCE
# ENGINEERING
## AND TECHNOLOGY

EDITOR-IN-CHIEF

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**admissibility condition** in artificial intelligence and optimization theory, the necessity that the heuristic measure never overestimates the cost of the remaining search path, thus ensuring that an optimal solution will be found.

**ADT** *See* abstract data type.

**advanced manufacturing system (AMS)** modern manufacturing system combining computer assisted design, automation, robotics, and humans in a manner that maximizes product quality, optimizes production costs, and increases the flexibility of the means of production.

**adversary** the input sequence can be thought of as being generated by an adversary that uses information about the past moves of the on-line algorithm to choose inputs that maximize the ratio between the cost to the algorithm and the optimal cost.

**aerodynamic head** *See* disk head.

**afferent filter** a filter acting on information coming in to a receiving system.

**affine function** a geometric image transformation including one or more translations, rotations, scales, and shears that is represented by a 4 × 4 matrix allowing multiple geometric transformations in one transform step. Affine transformations are purely linear and do not include perspective or warping transformations. *Affine functions* are functions of several variables which can be defined as

$$f(x_1, x_2, \dots, x_n)$$
$$= c_0 + c_1 x_1 + c_2 x_2 + \dots + c_n x_n$$

where $c_i$ are known constants.

**affine map** *See* affine function.

**affine transform** *See* function.

**affordance** information present in the environment and available for processing, and which is related to invariants within that environment.

**after image** a copy of a database object after it is updated.

**agent** (**1**) a computational entity that acts on behalf of other entities in an autonomous fashion.

(**2**) in the client-server model, the part of the system that performs information preparation and exchange on behalf of a client or server. Especially in the phrase "intelligent agent" it implies some kind of automatic process which can communicate with other agents to perform some collective task on behalf of one or more humans.

**agent-based system** an application whose components are agents. *See* agent.

**aggregate class** a class that contains an aggregation of other objects.

**aggregate function** a function supported in SQL (not expressible in the relational algebra) that applies mathematical functions to a collection of values. Examples include average, count, sum, etc.

**aggregate traffic** in an analytic model that has multiple classes of service, or multiple chains of customers, the aggregate traffic is the combined traffic from one or more classes of service. In this case, the performance metrics obtained are for the combination of classes. A class may be aggregated (combined) with another when no performance metrics are desired for the class, or when individual class measurements are difficult to obtain.

**aggregation** a whole-part relationship in which the whole object has emergent and resultant properties and the relationship is asymmetric and irreflexive at the instance level.

**AGI** *See* address generation interlock.

**Aiken, Howard Hathaway** (1900–1973) Born: Hoboken, New Jersey.

Aiken is best know as the inventor of the Mark I and Mark II computers. While not commercially successful, these machines were significant in the development of the modern com-