Program recommendation method and system utilizing a viewing history of commercials

Abstract

A program commercial based recommendation system employing a program commercial detection module, a facial estimation module, and a program recommendation module for implementing method for developing a viewing history of a viewer is disclosed. The program commercial detection module detects commercials within a transmission signal. In response to a detection of a program commercial, the facial estimation module generates a facial estimation of a viewer to thereby determine if the viewer is watching or not watching the program commercial. In response to a generation of the facial estimation, the program recommendation module stores the program commercial within a viewing history database. The stored commercial either has a positive rating when the facial estimation indicates the viewer is watching the program commercial or a negative rating when the facial estimation indicates the viewer is not watching the program commercial.

Inventors: Gutta, Srinivas; (Yorktown Heights, NY); Kurapati, Kaushal; (Yorktown Heights, NY); Lee, Mi-Suen; (Ossining, NY)

Individual recommender database using profiles of others

Abstract

A data-class recommender, such an electronic program guide that recommends television programs, avoids users getting trapped in a rut when the users select the same programming material over and over again. In an embodiment, the recommender may be programmed automatically to leverage the profile of another user to broaden the user's profile. For example, the recommender may use the target descriptions of other users in a same household of the user as a guide for broadening the user's profile. Alternatively, the household profile may be used as a filter for source material for soliciting feedback from
the user. In this way, rather than simply broadening the user's range arbitrarily, guidance from other profiles, related in some way to the user, is obtained and leveraged. Note that the "relationship" can include friends, published stereotypes representing interests of the user, and others.

Inventors: Gutta, Srinivas; (Buchanan, NY); Kurapati, Kaushal; (Yorktown Heights, NY)

United States Patent Application 20030066067
Kind Code A1
Gutta, Srinivas; et al. April 3, 2003

Individual recommender profile modification using profiles of others

Abstract

A data-class recommender, such an electronic program guide that recommends television programs, allows users to modify their implicit profiles using the profiles of other users. For example, if a user likes the programming choices made by a friend's profile, the user can have his/her profile modified by adding parts of the friend's profile to his own, either replacing parts or forming a union of the descriptors that indicated favored classes of data. According to an embodiment, features may be labeled to allow the modifying user to select the specific parts of the friend's profile to use in making the modifications. The labeling may be done based on feature-value scores or categories for which there is a high frequency of cross-correlation with other categories in a description that defines preferred subject matter, such as a specialized description of a version space.

Inventors: Gutta, Srinivas; (Buchanan, NY); Kurapati, Kaushal; (Yorktown Heights, NY)

United States Patent Application 20030061183
Kind Code A1
Schaffer, J. David; et al. March 27, 2003

Real-time event recommender for media programming using "Fuzzy-Now" and "Personal Scheduler"

Abstract

A recommendation system and method are disclosed. In the system and method, the personal schedule of the user is used to modify the recommendation functions of media
events. The personal schedule may be entered by the user or determined through monitoring over time. An exemplary recommendation function modification is if a media event ends after the user's bedtime, as indicated by the personal schedule. In this example, the recommendation function of that event will be reduced in value because the user will likely go to bed before the event is over.

Inventors: Schaffer, J. David; (Wappingers Falls, NY); Trovato, Karen I.; (Putnam Valley, NY); Kurapati, Kaushal; (Yorktown Heights, NY)

United States Patent Application 20030051240
Kind Code A1
Schaffer, J. David; et al. March 13, 2003

Four-way recommendation method and system including collaborative filtering

Abstract

A system employing an automated collaborative filtering process for recommending an item to a viewer based upon feedback data, implicit data, and/or explicit data corresponding to a primary viewer as well as secondary viewers is disclosed. A first act of the automated collaborative filtering process is to match data indicative of a viewing of a first group of items by the primary viewer to data indicative of a viewing of a second group of items by the secondary viewers. A second act of the automated collaborative filtering process is to generate a recommendation of the item by the primary viewer as a function of data indicative of one or more attributes of the item as compared to the data matching accomplished in the first act.

Inventors: Schaffer, J. David; (Wappingers Falls, NY); Gutta, Srinivas; (Buchanan, NY); Kurapati, Kaushal; (Yorktown Heights, NY)

United States Patent Application 20030023972
Kind Code A1
Gutta, Srinivas; et al. January 30, 2003

Method for charging advertisers based on adaptive commercial switching between TV channels

Abstract

Disclosed is a method and system for switching a commercial for a user. Accordingly, the present invention obtains a user's profile or monitors a user's viewing history of various
commercials to determine the type of commercials that are not watched or not liked by the user. Thereafter, commercials between television programs are detected during a commercial break and compared with the user's profile or the user's past viewing information to determine whether the detected commercial is liked by the user. For an unwanted commercial, the present system retrieves one of the commercials liked by the user that is shown on different channels, then replaces the unwanted commercial with the commercial that is of interest to the user.

Inventors: Gutta, Srinivas; (Buchanan, NY); Trajkovic, Miroslav; (Ossining, NY); Kurapati, Kaushal; (Yorktown Heights, NY)

United States Patent Application 20030014404
Kind Code A1

Nearest neighbor recommendation method and system

Abstract

A program recommendation system employing a program record module and one of various nearest neighbor modules is disclosed. In response to a reception of a program record, the program record module converts each key field of the program record into a feature value. A single neighbor module selectively generates a recommendation of a program corresponding to the program record based upon a stored program record qualifying as a nearest neighbor of the received program record. A multiple neighbor module selectively generates a recommendation of the program corresponding to the program record based upon N number of stored program records qualifying as N number of nearest neighbors of the received program record. A neighbor cluster selectively generates a recommendation of the program corresponding to the program record based upon the cluster of stored program records qualifying as the nearest neighbor of the received program record.

Inventors: Gutta, Srinivas V.R.; (Buchanan, NY); Schaffer, J. David; (Wappingers Falls, NY); Kurapati, Kaushal; (Yorktown Heights, NY)

United States Patent Application 20020194602
Kind Code A1
Gutta, Srinivas V.R.; et al. December 19, 2002

Expert model recommendation method and system
Abstract

A program recommendation system employing a plurality of classifier modules is disclosed. In response to a reception of a record corresponding to a program, a classifier module correlated to a programming category indicated by the record as corresponding to the program will generate a recommendation of the program or each classifier module generates a recommendation of the program when the record fails to indicate a programming category corresponding to the program. When multiple recommendations are generated, a program record module of the system ranks the recommendations and utilizes the highest rank recommendation for the program.

Inventors: Gutta, Srinivas V.R.; (Buchanan, NY) ; Schaffer, David J.; (Wappingers Falls, NY) ; Kurapati, Kaushal; (Yorktown Heights, NY)

United States Patent Application 20020194586
Kind Code A1
Gutta, Srinivas ; et al. December 19, 2002

Method and system and article of manufacture for multi-user profile generation

Abstract

A system, method, and article of manufacture suitable for automatically generating recommendations of a set of entertainment options from a larger set of entertainment options based on user preferences for those options. In particular, the present invention relates to the field of automatically generating recommendations for viewing television programs based on past viewing patterns and preferences of a plurality of television viewers, all of whom do not need to be physically present in front of the television. The present invention creates a composite user profile based on individual profiles for each user detected who is to be used in the composite user profile, some of whom need not be present in front of the television. Each user's preferences may be weighted the same as each other user's or users may have differing weights assigned to their preferences.

Inventors: Gutta, Srinivas; (Buchanan, NY) ; Kurapati, Kaushal; (Yorktown Heights, NY) ; Trajkovic, Miroslav; (Ossining, NY)

United States Patent Application 20020191030
Kind Code A1
Trajkovic, Miroslav ; et al. December 19, 2002
Method and system and article of manufacture for display of option recommendations through time-by-score

Abstract

A system, method, and article of manufacture is disclosed suitable for displaying selectable time orderable options, such as television programs available for viewing on a television, using a tunnel interface. The tunnel interface displays concentric rings where each ring represents a different set of option data whose attributes are modified to reflect a user's preferences. The modified option data are further arranged such that each concentric ring is ordered by time. Additionally, choices within each ring are visually distinguishable by user preference. Users can navigate within and between the concentric rings and select one or more of the available options using the concentric rings.

Inventors: Trajkovic, Miroslav; (Ossining, NY); Kurapati, Kaushal; (Yorktown Heights, NY); Gutta, Srinivas; (Buchanan, NY)

United States Patent Application 20020186867
Kind Code A1
Gutta, Srinivas; et al. December 12, 2002

Filtering of recommendations employing personal characteristics of users

Abstract

A system and method for filtering selections and presenting recommendations. A filter that is associated with a media system receives data comprising one or more personal characteristics of a user of the media system. The filter determines at least one recommendation for the user of a selection available on the media system based upon at least one of the personal characteristics of the user.

Inventors: Gutta, Srinivas; (Buchanan, NY); Kurapati, Kaushal; (Yorktown Heights, NY); Trajkovic, Miroslav; (Ossining, NY)

United States Patent Application 20020174429
Kind Code A1
Gutta, Srinivas; et al. November 21, 2002

Methods and apparatus for generating recommendation scores

Abstract
Methods and apparatuses for recommending television programs are provided. The methods provided include obtaining a list of one or more television programs to at least three different program recommenders, obtaining from each recommender a recommendation score, and computing a combined recommendation score by applying a voting process. The combined recommendation score is then presented to a user, who, based thereon, can select a television program of interest. The voting process is a stochastic method including a Bayesian method, a hierarchical decision tree, a memory based learning process, a rule based learning process, a neural network or a hidden markov model. The enumerated stochastic processes can be further combined according to a combination scheme including a unison scheme, a majority scheme, a trust scheme, an averaging scheme or mixture thereof.

Inventors: Gutta, Srinivas; (Buchanan, NY); Kurapati, Kaushal; (Yorktown Heights, NY); Schaffer, David J.; (Wappingers Falls, NY)

United States Patent Application 20020169731
Kind Code A1
Gutta, Srinivas; et al. November 14, 2002

Television programming recommendations through generalization and specialization of program content

Abstract

A method for learning a concept description from an example set containing a plurality of positive and/or negative examples. The method including the steps of: initializing a general set to contain a null concept description; initializing a specific set to contain a concept description of a first positive example from the example set; and making the specific set more general according to each additional positive example from the example set and making the general set more specific according to each additional negative example from the example set until the specific and general sets converge to a single concept description. Preferably, the plurality of positive and negative examples contain description regarding television programming of a viewer and the concept description indicates a type of television programming the viewer likes.

Inventors: Gutta, Srinivas; (Buchanan, NY); Kurapati, Kaushal; (Yorktown Heights, NY)

United States Patent Application 20020149613
Kind Code A1
Gutta, Srinivas; et al. October 17, 2002
Automatic positioning of display depending upon the viewer's location

Abstract
A system having a video display screen that provides video to a user. The position of the display screen is adjustable based upon the location of the user with respect to the display screen. The system includes at least one image capturing device trainable on a viewing region of the display screen and coupled to a control unit having image recognition software. The image recognition software identifies the user in an image generated by the image capturing device. The software of the control unit also generates at least one measurement of the position of the user based upon the detection of the user in the image.

Inventors: Gutta, Srinivas; (Buchanan, NY); Kurapati, Kaushal; (Yorktown Heights, NY); Colmenarez, Antonio J.; (Peekskill, NY)

United States Patent Application 20020144267
Kind Code A1
Gutta, Srinivas ; et al. October 3, 2002

Dynamic television channel creation

Abstract
A system for providing an interactive interface, wherein a television viewer can create a personal television channel. Such a system has the advantage of eliminating the need to peruse or surf television guides for the programs that an individual television viewer wants to watch. The personal channel contains all of the preferential programs selectable by the television viewer.

Inventors: Gutta, Srinivas; (Buchanan, NY); Kurapati, Kaushal; (Yorktown Heights, NY); Trajkovic, Miroslav; (Ossining, NY)

United States Patent Application 20020140805
Kind Code A1
Gutta, Srinivas ; et al. October 3, 2002

Television program selection system

Abstract
A television program selection system and method that utilize key frame images of each program. The key frame images are extracted from the recorded show as the program progresses. This continuum of key frame images provides the viewer with a condensed story line and scope of each program, thus allowing the viewer to make an intelligent choice of the programs that he or she intends to record and/or watch.

Dynamic key frame generation and usage

Abstract

A dynamic method and system for processing video source frames (e.g., a television movie) with a video processing system (VPS) that includes a processor, a memory structure, input devices, and an output display. The video source frames, which are received by the VPS from a video source, are executed by the processor. While the video source frames are being executed, a subset of the frames, called key frames, are extracted from the video source frames and stored in the memory structure. The extracting of the key frames is implemented in accordance with a frame extraction algorithm. The extracting is terminated prior to completion of execution of the video source frames. Following termination of extracting, the key frames are reviewed by a user with the output display to determine whether to watch the remainder of the video source frames. The key frames are erased after being reviewed.
Real-time events are electronically recommended using a fuzzy-now function of time. Real-time experiencing apparatus can be automatically tuned to a particular real-time event using a surf ring related to recommendations or automatically without a user request. Recommendations can be presented on a remote control device.

Inventors: Schaffer, J. David; (Wappingers Falls, NY) ; Kurapati, Kaushal; (Yorktown Heights, NY) ; Trovato, Karen I.; (Putnam Valley, NY)

Method and apparatus for selective updating of a user profile

Abstract

A television programming recommender is disclosed that selectively obtains feedback information from a user to update one or more profiles associated with the user. Previously obtained implicit and explicit preferences are utilized to selectively focus the collection of feedback information to further update and refine the implicit and explicit preferences. The present invention obtains feedback from a user in a manner that maximizes the value of the obtained information and improves the performance of the television programming recommender. The present invention automatically requests feedback from the user upon the occurrence of predefined criteria. The nature of the requested feedback, and the manner in which the obtained feedback is used to adjust a profile, can vary.

Inventors: Schaffer, J. David; (Wappingers Falls, NY) ; Lee, Kwok Pun; (Yorktown Heights, NY) ; Kurapati, Kaushal; (Yorktown Heights, NY) ; Gutta, Srinivas; (Buchanan, NY)

User interface for collecting viewer ratings of media content and facilitating adaption of content recommenders

Abstract
A user interface for a TV recommender system includes a display screen having a first region for displaying a rating derived from a previously defined TV viewing preference profile contained in the recommender system; and a second region displaying preference settings in the profile which were used to derive the rating. The user interface enables the preference settings to be changed if the rating derived by the profile is incorrect. Additionally, the user interface allows for new features to be added to the profile, which were not previously a part of the profile. Further, a method for correcting a previously defined TV viewing preference profile used in a TV recommender system to more accurately reflect a user's preferences. The method includes displaying a rating derived from the previously defined profile; displaying preference settings in the profile which were used to derive the rating; enabling the user to change at least one of the preference settings if the rating derived by the profile is incorrect; and enabling new features to be added to the profile, which were not previously a part of the profile. Still further, a TV recommender system including a display screen having a first region for displaying a rating derived from the profile; and a second region displaying preference settings in the profile which were used to derive the rating. The preference settings can be changed if the rating derived by the profile is incorrect. Additionally, the user interface allows for new features to be added to the profile, which were not previously a part of the profile.

Inventors: Kurapati, Kaushal; (Yorktown Heights, NY) ; Schaffer, James David; (Wappingers Falls, NY)

United States Patent Application 20020075320
Kind Code A1
Kurapati, Kaushal June 20, 2002

Method and apparatus for generating recommendations based on consistency of selection

Abstract

A method and apparatus are disclosed for generating recommendations for one or more items based on the consistency with which an item was selected relative to the number of times the item was offered. The present invention adjusts a conventional program recommender score based on a consistency metric. The exemplary consistency metric is defined as the ratio of the number of times an item was selected over the number of times the item was presented in a given time period. In an exemplary program recommendation implementation, the consistency metric is defined as the ratio of the number of times a program was watched over the number of times the program was presented in a given time period. Generated recommendation scores can be increased or decreased in an appropriate manner to reward or penalize a user for consistent or inconsistent, respectively, selection
of the item.

Inventors: Kurapati, Kaushal; (Yorktown Heights, NY)