

PREFACE

Many dream of being able to predict the future. In finance, accurate predictions can direct portfolio management decisions. In marketing, knowledge of future demand for products and services can direct capital allocation. In operations support, predicting future problems (such as equipment failures and network congestion) can reduce or avoid their associated costs. In order to predict the future, we try to understand the past by analyzing historical data to discover patterns that can inform us about the processes being studied.

Each year, new opportunities open up for temporal data mining as more time-series data become available from high-profile applications. Investment firms are spending large sums of money on research attempting to predict the behaviors of individual financial instruments, as well as entire markets. The telecommunications industry is relying increasingly on performance monitoring, hoping to improve network reliability by catching failures before they occur. Work on fraud and intrusion detection often involves describing behavior trends. Researchers in data mining on the web are realizing the importance of dealing with changing information content and drifting preferences of their users.

This recent increase of interest in time series problems led us to organize this workshop, *Predicting the Future: AI Approaches to Time-series Problems*, held on July 27, 1998 in conjunction with the Fifteenth National Conference on Artificial Intelligence (AAAI-98). The purpose of the workshop was to gather together AI researchers studying various aspects of time-series analysis. Our hope was to reach some common ground in an area of research that is receiving increasing attention, as well as to discuss new results. These working notes contain the technical papers presented at the workshop.

We thank the authors, attendees, and invited speakers for their efforts and enthusiasm in making this possible. We are indebted to AAI for organizational and funding assistance, and for publishing these working notes; to David Leake, Chair of the AAI-98 Workshop Committee; and to our anonymous workshop-proposal reviewers for their suggestions and encouragement.

Andrea Danyluk, Tom Fawcett, and Foster Provost