IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

In re Patent of: Myr
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Filing Date: Mar. 17, 2000
Title: REAL TIME VEHICLE GUIDANCE AND FORECASTING SYSTEM UNDER JAM CONDITIONS

Declaration of Stephen Wynn

1. I, Stephen Wynn, am over the age of 18, have personal knowledge of the facts set forth herein, and am competent to testify to the same.

2. I am currently employed as Interim Associate Library Dean for Technical Services and Systems at Truman State University, located in Kirksville, Missouri. I came to Truman State University as a Cataloger in 2000, and in 2006 became Head of Technical Services and Systems, with oversight of the Technical Services Department, including all procedures for Acquisitions, Receiving, and Cataloging.

3. As a Cataloger and Head of Technical Services and Systems, I have personal knowledge of the Library's normal practices for indexing, cataloging, and shelving periodicals received by the Library.

4. The normal practice of the Library is to record the date on which periodicals are received by the Library. This practice includes stamping or otherwise noting a “Received” date for the periodical by a Library staff person
with knowledge of the date of receipt. The Library's practice of recording
received dates was very similar in 1998 as it is today.

5. After a periodical is received by the Library, it is entered into a
catalog. The delay between receipt of a new issue to its availability in stacks is
typically less than 24 hours, and almost certainly within 48 hours. Once a
periodical is entered into the catalog, patrons of the Library can search for and find
the periodical.

6. Attached hereto as an Appendix is a true and correct photographic
copy of the page containing the "Received" date stamp for Mathematical and
Computer Modelling, Volume 27, Number 9-11, published May 6, 1998
(hereinafter the "MCM Journal"), which I obtained from the collection of the
Library. The MCM Journal includes, at page 311, a paper titled Short-Term
Forecasting of Traffic Delays in Highway Construction Zones Using On-Line

7. The MCM Journal contains a "LIBRARY" date stamp indicating that
it was received by the Library on June 11, 1998.
I swear or affirm that all statements made herein of my own knowledge are true and that all statements made on information and belief are believed to be true.

Dated: 13 Jan 2016,

Stephen Wynn
Interim Associate Library Dean for Technical Services and Systems
Truman State University
APPENDIX A

MATHEMATICAL AND COMPUTER MODELLING

EDITOR-IN-CHIEF: Ervin Y. Rodin

Intelligent Transportation Systems—Traffic Sensing and Management

Guest Editors

A. GARCÍA-ORTIZ
S. M. AMIN
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Short-Term Forecasting of Traffic Delays in Highway Construction Zones Using On-Line Approximators

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Abstract—Highway construction zones are often the cause of traffic delays. This is a natural consequence of the high congestion and nonuniform traffic flow conditions in construction zones. Most of the current algorithms for computing traffic delays are accurate for low density traffic conditions, and address the estimation of current travel time only. This paper presents a method for short-term forecasting of traffic delays in highway construction zones using data from presence detectors. The method is based on a modular approach wherein data from adjacent detectors is processed for estimating the travel time between the two detectors. The travel time estimates are then considered as time-series data, and the problem of short-term forecasting of traffic delays is formulated as a time-series evolution problem. A generic structure referred to as an on-line approximator is used for the prediction of travel time based on current and past travel time estimates. Simulation examples are used to illustrate the traffic delay forecasting algorithm. © 1998 Elsevier Science Ltd. All rights reserved.

Keywords—Forecasting, Traffic delays, Construction zone, On-line approximators, Neural networks.

1. INTRODUCTION

A highway construction work zone generally creates conflicts between vehicular traffic and work activity. Work zones not only lead to traffic conditions that violate motorists' expectations but also result in frequent work activities that restrict workers' movements. Hence, the development of a safe and accurate traffic control system that provides adequate warning, delineation, and channelization in advance of and through highway work zones is an important issue in highway operations.

The traffic conditions in these zones are influenced by a number of factors including: the method of controlling the traffic (i.e., the number of lane closures, the lane widths, the speed limits, etc.), the traffic volume, the fraction of heavy vehicles and their speed behavior, the behavior of the following drivers, and the weather conditions [1,2]. These factors often lead to congestion, which typically begins at the work site bottleneck. The problem is further worsened by the lower capacity of the lanes in freeway work zones compared to the capacity found in lanes of homogeneous freeway sections [3]. This congestion often results in "stop-and-go" traffic movement.