LITERATURE SURVEY

DOMAIN: ARTIFICIAL INTELLIGENCE

PAPER NAME: "REAL TIME COMMUNICATION POWERED BY AI FOR SPECIALLY ABLED"

- ## REFERENCE PAPER 1:

Real time communications system

AUTHOR: Daniel L Marks

ABSTRACT:

A method of communicating via an Internet network, the method including: connecting, responsive to receiving from each of a plurality of computers a login name and a password corresponding to a respective user identity, a computer system to each of said plurality of computers; determining, by the computer system, which one or ones of the plurality of computers can communicate communications with at least one other of the plurality of computers; receiving, by the computer system, at least some of the communications in real time via the Internet network; and providing, by the computer system to at least one of the plurality of computers, a member-associated image and member identity information corresponding to one of the user identities.

- ## **REFERENCE PAPER 2:**

<mark>Virtual Reality Real-Time Communication System</mark>

AUTHOR: Jia HYPERLINK "https://www.researchgate.net/scientific-contributions/Jia-Fu-2178252449" Fu

ABSTRACT:

The design and implementation of virtual communication system has been one of the main concern in the development of Virtual Reality. The main concern in constructing a network virtual communication system network is to have an appropriate architecture and effective communication protocol design to implement, and thus a research has been carry on based on the task of presenting an effective communication protocol design and realize the data and information transmission in real-time, which sent to the virtual network communication system.

- ## **REFERENCE PAPER 3:**

<mark>An Architecture for real-time communication systems</mark>

AUTHOR: **C. Nikolaou**

ABSTRACT:

A multimedia communication model is strongly implicated of the manufacturer-dependent solutions for personal computers and workstations including application software on the one hand and by the intelligent network concept on the other. In

the open literature, a proposed layered model for multimedia communication comprises five constituents Partitioning of complex information objects into district information types for the purpose of either communication, storing and processing.

- ## REFERENCE PAPER 4:

<mark>On Real-Time Communication Systems with Noisy Feedback</mark>
AUTHOR: **Aditya HYPERLINK "https://www.researchgate.net/profile/Aditya-Mahajan-9" HYPERLINK "https://www.researchgate.net/profile/Aditya-Mahajan-9"Mahajan** AND **D. HYPERLINK "https://www.researchgate.net/profile/D-Teneketzis"Teneketzis**

ABSTRACT:

We consider a real-time communication system with noisy feedback consisting of a Markov source, a forward and a backward discrete memoryless channels, and a receiver with finite memory. The objective is to design an optimal communication strategy (that is, encoding, decoding, and memory update strategies) to minimize the total expected distortion over a finite horizon. We present a sequential decomposition for the problem, which results in a set of nested optimality equations to determine optimal communication strategies. This provides a systematic methodology to determine globally optimal joint source-channel encoding and decoding strategies for real-time communication systems with noisy feedback.

- ## REFERENCE PAPER 5:

Conformance testing to real-time communications systems

AUTHOR: Ousmane HYPERLINK "https://www.researchgate.net/scientific-contributions/Ousmane-Kone-70689079" HYPERLINK "https://www.researchgate.net/scientific-contributions/Ousmane-Kone-70689079"Koné

ABSTRACT:

Real-time requirements appear in the specifications of new evolving systems such as multimedia applications or embedded systems. Testing is an experimental method aimed at checking the correctness of some implementation and its conformance to some standard specification. At present, standardization institutions are being interested in a formal framework for the development of real-time communications systems. Some ISO working groups are proposing formalisms to describe these systems, while other working groups are proposing formalisms to describe real-time test cases. But few works exist on conformance testing aspects, against time-dependencies that bridge the gap between the two previous activities. The contribution of this paper is the proposition of a complete method to the design of tests against real-time communications systems. The proposed method complies to the ITU-T Z500 standard on tests development and we show that the tests designed by our method are sound and exhaustive. The test construction process is also illustrated with an example of time-dependent protocol.

- ## REFERENCE PAPER 6:

Real-time communication systems based on taut strings

AUTHOR: Eric HYPERLINK "https://www.researchgate.net/scientific-contributions/Eric-

ABSTRACT:

We consider buffered real-time communication over channels with time-dependent capacities which are known in advance. The real-time constraint is imposed in terms of limited transmission time between sender and receiver. For a network consisting of a single channel it is shown that there is a coding rate strategy, geometrically characterized as a taut string, which minimizes the average distortion with respect to all convex distortion-rate functions. Utilizing the taut string characterization further, an algorithm that computes the optimal coding rate strategy is provided. We then consider more general networks with several connected channels in parallel or series with intermediate buffers. It is shown that also for these networks there is a coding rate strategy, geometrically characterized as a taut string, which minimizes the average distortion with respect to all convex distortion-rate functions. The optimal offline strategy provides a benchmark for the evaluation of different coding rate strategies. Further, it guides us in the construction of a simple but rather efficient strategy for channels in the online setting which alternates between a good and a bad state.

- ## REFERENCE PAPER 7:

A Mechanism for Seamless Cryptographic Rekeying in Real-Time Communication Systems

AUTHOR: Heiko HYPERLINK "https://www.researchgate.net/scientific-contributions/Heiko-Buhler-2199450763" Buhler

ABSTRACT:

Cryptographic protection of messages requires frequent updates of the symmetric cipher key used for encryption and decryption, respectively. Protocols of legacy IT security, like TLS, SSH, or MACsec implement rekeying under the assumption that, first, application data exchange is allowed to stall occasionally and, second, dedicated control messages to orchestrate the process can be exchanged. In real-time automation applications, the first is generally prohibitive, while the second may induce problematic traffic patterns on the network. We present a novel seamless rekeying approach, which can be embedded into cyclic application data exchanges. Although, being agnostic to the underlying real-time communication system, we developed a demonstrator emulating the widespread industrial Ethernet system PROFINET IO and successfully use this rekeying mechanism

- ## REFERENCE PAPER 8:

Measuring Objective Visual Quality of Real-Time Communication Systems in the Wild

AUTHOR : Chih HYPERLINK "https://www.researchgate.net/scientific-contributions/Chih-Fan-Hsu-2082227417"-Fan Hsu

ABSTRACT:

During the outbreak of epidemic diseases, the importance of real-time communication (RTC) systems dramatically increases. People use RTC systems for communicating with others, presenting projects, attending online courses, and sharing videos. With different network conditions, applications, and scenarios, how to choose an appropriate system for high-quality RTC is an open question. To the best of our knowledge, there is no general and unified method to comprehensively evaluate the performance of the publicly available RTC systems. In this paper, we systematically evaluate several performances of RTC systems. Our method treats systems as a black-box, which can be easily adapted to other systems. Our method is also available for other video transmission systems, such as streaming and live broadcasting systems. According to our measurement method, we evaluate three web-based and three software-based RTC systems on two video conferencing (VC)-based and two screen sharing (SS)-based scenarios. We measure the received video quality (graphical quality and frame rate) at the receiver, the upload bitrate at the sender, and four usages of local resource. Furthermore, we propose a new metric to measure the ability of the system to handle insufficient bandwidth situations. Our proposed metric is the first one directly measure the ability of the rate adaptation mechanism for RTC systems. We expect the measurement method, the metric, and our findings can help system development in the future. Our detailed analysis reveals that (1) the software-based systems are more efficient than the web-based systems for bitrate usage; (2) the web-based systems are more tolerant to insufficient bandwidth conditions than the software-based systems; (3) the studied RTC systems currently are not designed for the scenario of sharing dynamic videos because of their low-frame-rate strategy, which limits the usage; and (4) decreasing graphical quality is more likely to be recognized than decreasing the frame rate. Frame rate adjustment for rate adaptation can be considered.

• **REFERENCE PAPER 9:**

Expertise referrals using a real-time communication system

AUTHOR : Marc Dreyfus

ABSTRACT:

A computer-implemented method of providing expertise based referrals can include receiving, from a first user, a voucher specifying a second user seeking expertise and a third user as a potential subject matter expert. Responsive to execution of the voucher, an instant messaging session between the second user and the third user can be established and an input from the second user indicating whether a posed question from the second user is resolved can be received. When the posed question is resolved, a role of maven can be assigned to the first user and a role of subject matter expert can be assigned to the third user. A transcript of the instant messaging session between the second user and the third user, a reference to the first user with the assigned role, and a reference to the third user with the assigned role can be stored as part of a referral transaction.