

AI Days – The Latest in Artificial Intelligence Technology Overview

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Organized by the University of Zurich,
videoconferencing infrastructure provided by SWITCH
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<http://tokyolectures.org/ai-days>

Short Description

This document describes the technical aspects of the *AI Days* – a “show case” for universities and institutes around the globe, where they can demonstrate their current research, development, and teaching activities in the field of Artificial Intelligence. Thanks to presence technologies such as videoconferencing and live streaming, a world-wide audience can participate interactively, and a recording of the presentations will be available online. The two full-day events are intended as a means to convey the ideas and concepts of Artificial Intelligence to a broad audience in an exciting and entertaining way.

Presence Technology

The “AI Lectures from Tokyo” (2003/2004) were a first experiment in employing *Presence Technologies* for education in the field of Artificial Intelligence. The term “Presence Technology” (sometimes also “Virtual Presence Technology”) subsumes all technical means to allow the interaction with a remote agent as if physically present.¹ While technical advances have not yet reached this ideal goal, a number of developments, such as videoconferencing and instant messaging – even the good old telephony service, one could argue – already serve to shorten the physical distance between communication partners. In education, where there is typically a one-to-many situation (one teacher distributing knowledge to many students), the

¹The term has originally been coined from the technology developed to determine the online availability status of devices or users of instant messaging, cell phone or similar services.

application of Presence Technology becomes especially useful – e. g. when the lecturer cannot attend the class but still wants to give his lecture (as was the case in the “AI Lectures from Tokyo”).

Technology used in the *AI Days*

In essence, the *AI Days* employ a very similar set-up as the *AI Lectures from Tokyo*², the main difference being the application sharing (see below) and the number of participating sites. What follows is a brief overview of the technological set-up. In essence, there are four communication pathways:

- videoconference
- application sharing
- instant messaging
- live streaming

The videoconference channel comprises only the video and sound connection. In order to show slides (on-screen presentations), an application sharing channel is required. Instant messaging is used for communication among staff members “behind the scenes”, as it is free, fast, and does not interrupt the flow of the event. Finally, in order to make the events accessible to a world-wide audience on the internet, we use live streaming technology.

Videoconference

As with the “AI Lectures from Tokyo”, the H.323 protocol is used for the *AI Days* videoconference, and SWITCH (the Swiss Education & Research Network)³ provides the technical infrastructure. All participating sites are required to use H.323 compliant equipment, but this should not pose further problems as many universities already have the necessary hardware (such as videoconferencing endpoints from Polycom or Tandberg). Software solutions exist for all major operating systems⁴, but the quality is not as good as with hardware-based equipment (especially with regards to audio). Therefore, hardware solutions are strongly recommended.

The Multipoint Control Unit (MCU) at SWITCH, the “heart” of the videoconference, has been set up for 12 concurrent connections. However, as it does not make sense to have more than 9 sites visible on the screen at the same time, and not all participating sites will be connected during the whole event due to time differences, at least 3 connections will be available for administrative use (such as manually operating the MCU).

²<http://tokyolectures.org/about/tech>

³<http://www.switch.ch>

⁴Windows: NetMeeting, Linux: GnomeMeeting, Mac OS: ohphoneX

Application sharing

Since the “bare” H.323 based videoconference does not allow the transmission of resources other than the video and audio signal, an additional connection is required for slide shows or other forms of on-screen presentations. While we used the “BridgIt” software from SMART Technologies⁵ for the “AI Lectures from Tokyo”, this time we employ “Macromedia Breeze”⁶, because this software seems to be much more flexible in terms of supported operating systems and annotation tools, and it even allows a (multi-point) videoconference via webcam. However, as there is currently no way of connecting Breeze to an H.323 videoconference, we will not employ this feature at the time being, but only use Breeze’s application sharing capabilities. Breeze is also provided by SWITCH⁷.

Background communication

In the “AI Lectures from Tokyo”, instant messaging (in our case: AOL Instant Messenger⁸) proved to be an inexpensive yet reliable and fast communication tool. It was used by staff members to discuss problems before, during and after the actual videoconference. Since the instant messaging is separate from the videoconference and application sharing channels and requires only very little bandwidth, the actual videoconference is not interrupted by this background communication. We will again use AOL Instant Messenger for the *AI Days*, so all participating sites are asked to provide at least one person’s instant messaging name (can be set up for free on the AOL website).

Live streaming

The whole *AI Days* will be made available as streaming video to the general public. While the videoconference is running, a live broadcast is provided in collaboration with Solutionpark.ch⁹ and the Akamai network¹⁰. Once the events are over, a recorded version will be made available as streaming “video on demand”. The PLAY system, jointly developed by Solutionpark.ch and the Swiss Federal Institute of Technology (ETH)¹¹ allows to easily combine the videoconference and application sharing channels into one single browser window, as was done with the “AI Lectures from Tokyo”.

⁵<http://www2.smarttech.com/st/en-US/Products/Bridgit/>

⁶<http://www.macromedia.com/software/breeze/>

⁷<http://www.switch.ch/econf/html/collaboration/breeze.html>

⁸<http://www.aim.com>

⁹<http://streaming.solutionpark.ch>

¹⁰<http://www.akamai.com>

¹¹<http://www.play.ethz.ch/>

Website

Unlike the website for the “AI Lectures from Tokyo”, where materials such as textbook excerpts, references etc. had been provided to the students, the website for the *AI Days* is used mainly for textual portraits of the participating institutes and for a “gateway” to the live-streamed/video-on-demand events.

<http://tokyolectures.org/ai-events/>

Testing

A full-day test run of the *AI Days* will take place on Wednesday, 30 November 2005, from 9:00 to 18:00 CET. All participating sites are kindly invited to schedule an appointment on that day, so that the videoconference connection as well as the application sharing can be tested thoroughly.

If this date is not suitable for you, please check the e-Conferencing help site from SWITCH (<http://www.switch.ch/econf/html/Howtomake.html>) or contact Nathan Labhart (labhart@ifi.unizh.ch) for another test date.