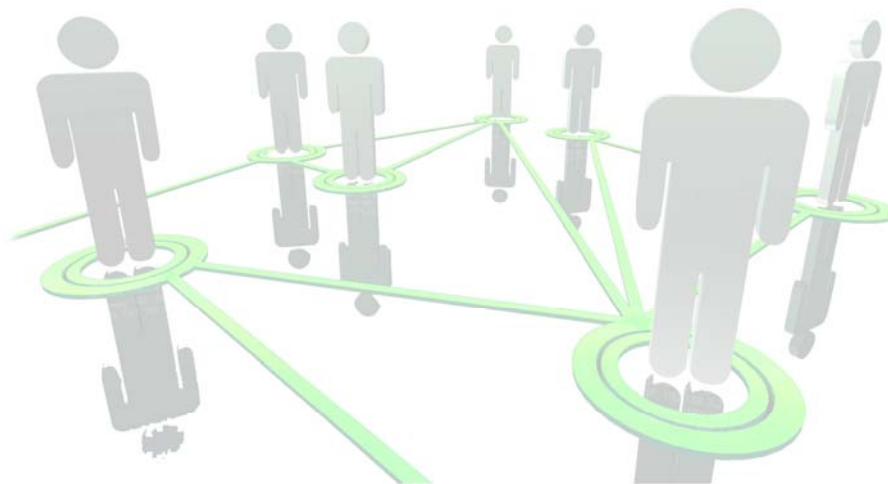# NETIS 2011

Networking International School
2nd edition

**An event organized by MIV Imaging Venture
and supported by ACEOLE - a Marie Curie program**

**24-25 February 2011
Brasov, Romania**

PROGRAMME

DAYONE
24th February 2011

8:30 – 9:00	**Registration**
9:00 – 9:05	**Mihai Ivanovici (MIV, Brașov, România)** Welcome speech
9:05 – 11:00	**Dan Savu (CERN, Geneva, Switzerland)** Introduction to Networking
11:00 – 11:30	**Coffee break**
11:30 – 12:00	**Brian Martin (CERN, Geneva, Switzerland)** The ATLAS TDAQ Network Architecture
12:00 – 13:00	**Dan Savu (CERN, Geneva, Switzerland)** Advanced Network Monitoring Techniques (case study: The ATLAS TDAQ Network)
13:00 – 14:30	**Lunch break**
14:30 – 15:30	**Mihai Ivanovici (MIV, Brașov, România)** Video Quality Assessment for MPEG-4 Streaming Applications
15:30 – 16:30	**Zoltan Gaspar (MIV, Brașov, România)** VoIP Quality Assessment using Statistical Methods
16:30 – 17:30	**Dan Savu, Luca Magnoni (CERN, Geneva, Switzerland)** Marie Curie Actions, Career Opportunities for Researchers

DAYTWO
25th February 2011

8:30 – 9:00	**Breakfast**
9:00 – 10:00	**Luca Magnoni (CERN, Geneva, Switzerland)** Introduction to Data Acquisition Systems
10:00 – 10:30	**Luca Magnoni (CERN, Geneva, Switzerland)** The Atlas DAQ System
10:30 – 11:00	**Coffee break**
11:00 – 12:00	**Silvia Bătrâneanu (CERN, Geneva, Switzerland)** Introduction to 3D graphics
12:00 – 12:30	**Silvia Bătrâneanu (CERN, Geneva, Switzerland)** Monitoring the ATLAS Network using virtual reality
12:30 – 14:00	**Lunch break**
14:00 – 17:00	**Dan Savu (CERN, Geneva, Switzerland)** Network Monitoring – laboratory works
14:00 – 17:00	**Silvia Bătrâneanu (CERN, Geneva, Switzerland)** 3D graphics – laboratory works

ABSTRACTS

Brian Martin   *The ATLAS TDAQ Network Architecture*
The lecture is about the ATLAS experiment in general and focus on the compute and networking structure that moves data off the detector and filters out the important events for storage and further treatment.

Luca Magnoni   *The Atlas DAQ System*
The lecture introduces the key elements of Data Acquisition (DAQ) systems and will present the main components of data acquisition software infrastructures. Furthermore, the DAQ system of the ATLAS experiment at LHC will be introduced and explained.

Dan Savu   *Advanced Network Monitoring Techniques*
Ever wondered how a large network is monitored and how a network expert knows everything about your data transfers? If so then this lecture will give you an insight over how a network is monitored for ensuring high level of security and postmortem analysis. Both traditional techniques as well as cutting edge technologies will be presented (SNMP, sFlow, OpenFlow etc). The lecture will be accompanied by a hands-on lab on traditional network monitoring.

Silvia Bătrâneanu   *Introduction to 3D graphics*
The course will contain an overview of the existing 3D graphics software with a focus on scene-graph based packages and X3D, the ISO standard for Web visualization. It will also introduce the main aspects of 3D graphics such as modeling, rendering, animation and navigation. Useful techniques for real-time rendering and handling large-scale 3D models will be then pointed out throughout the presentation of a 3D visualisation system built for monitoring the ATLAS data acquisition system. The laboratory will include basic X3D modeling, animation and scripting tasks.

Zoltan Gaspar   *VoIP quality assessment using statistical methods*
The lecture presents a broad overview of quality assessment methods used in telephony systems and introduces a new category of statistical methods that are particularly appropriate for VoIP.

Mihai Ivanovici   *Video Quality Assessment for MPEG-4 Streaming Applications*
The existing approaches for the assessment of network application performance are discussed, then a particular case of an MPEG-4 video streaming application. The developed setup and the proposed metrics for the video quality degradation as perceived by the user are presented. The results are compared against the ones given by unanimously-accepted metrics and – as an ultimate validation – the results of subjective tests are showed.

Dan Savu, Luca Magnoni *Marie Curie Actions, Career Opportunities for Researchers*
Open discussion about Marie Curie Actions, a set of mobility research grant schemes funding pre- and post-doctoral researchers in Europe as well as experienced researchers.

BIOGRAPHIES

Silvia
BĂTRÂNEANU
CERN, Geneva, Switzerland

Silvia Batraneanu obtained an MSc degree in electronics engineering from the "Politehnica" University of Bucharest, Romania. After working for one year in the software industry, she became a research assistant and started a PhD at the home university. During the last five years she worked at CERN for the ATLAS experiment where she has been involved in the study and operation of computer networks for the data acquisition system. Her work focuses on advanced network visualization for monitoring purposes and her domains of expertise are 3D graphics and information visualization.

Brian
MARTIN
CERN, Geneva, Switzerland

Brian Martin is a senior electronics engineer with over 30 years of experience working at CERN. He has worked on real time data acquisition systems for many experimental collaborations including the Nobel prize winning UA1 experiment. His field of expertise is in high speed busses and interconnects. He has published many technical papers both for CERN and for the several EU funded R&D projects that he has been involved in. He is currently leading the team working on designing commissioning and monitoring the data networks for the ATLAS experiment running at the CERN Large Hadron Collider.

Luca
MAGNONI
CERN, Geneva, Switzerland

Luca Magnoni is a computer researcher and software architect with solid background and experience in service oriented technologies and automated systems. During his studies in Computer Science at the University of Bologna he joined in 2006 the R&D team at the CNAF centre of the Italian National Institute of Nuclear Physics (INFN), to work on data management services in distributed environments. He co-lead the design and development of the StoRM project, an innovative solution for distributed storage management in grid infrastructure, currently adopted in several LHC computing grid sites. In 2009, he joined the data acquisition group of the ATLAS experiment at CERN as an ACEOLE Marie Curie researcher, working on automated monitoring, error detection and recovery in the online software framework. Currently PhD researcher at the University of Ferrara, his research interests are distributed and web technologies, automated systems and data analysis with intelligent techniques.
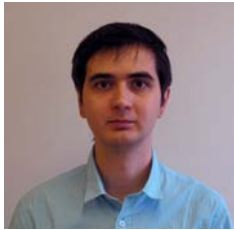
Dan
SAVU
CERN, Geneva, Switzerland

Dan Savu is a software engineer and networking expert with more than 10 years of experience as a Cisco Certified Academy Instructor. He holds a B. Sc. in computer engineering and M. Sc. in project management, being an embedded systems assistant at University Politehnica of Bucharest. His field of expertise is application development and networking technologies, being a project manager in software product development and implementation for more than 3 years. Since 2008 he joined CERN as a Marie Curie researcher and networking expert. He is currently part of the data acquisition group of the ATLAS experiment working on performance network monitoring and expert systems for traffic analysis.

Zoltan
GASPAR
MIV, Brașov, România

Zoltan Gaspar was born in Brasov, Romania, in 1982. He received the B.Sc. and M.Sc., degree from "Transilvania" University of Brasov, Romania in 2006 and 2008, respectively. He is currently a Ph.D. student at the same university. He joined Miron Enterprises LLC Atlanta, Georgia in 2004 and between 2006 and 2008 he was the director of Information Technology. Since 2007 he is an IEEE Student member.

Mihai
IVANOVICI
MIV, Brașov, România

Mihai Ivanovici received the B.Sc. degree from the Transilvania University, Brașov, România, then his M.Sc. and Ph.D. degrees from the Politehnica University, București, România, in 2001, 2002 and 2006 respectively. The research for his Ph.D. thesis was carried out at CERN, Geneva, Switzerland, between 2002 and 2005, where he was a project associate. In 2007 and 2008 he was a postdoc researcher at the SIC (Signals, Images and Communications) laboratory, University of Poitiers, France. His research interests include digital image processing and analysis in medical applications. He is the head of MIV Imaging Venture laboratory and an associate member of the Image Processing and Analysis Laboratory (LAPI) from Politehnica University, București, România. Currently, he is a lecturer at the Faculty of Electrical Engineering and Computer Science and the scientific secretary of the Department of Electronics and Computers within the Transilvania University, Brașov, România.

ORGANIZERS

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