



EYR@EaP 2018 Awards Ceremony
18 October 2018

Agenda

- What is EYR?
- EYR for EaPConnect
- EYR@EaP Program Results
- 2018 awards

EYR for EaPConnect

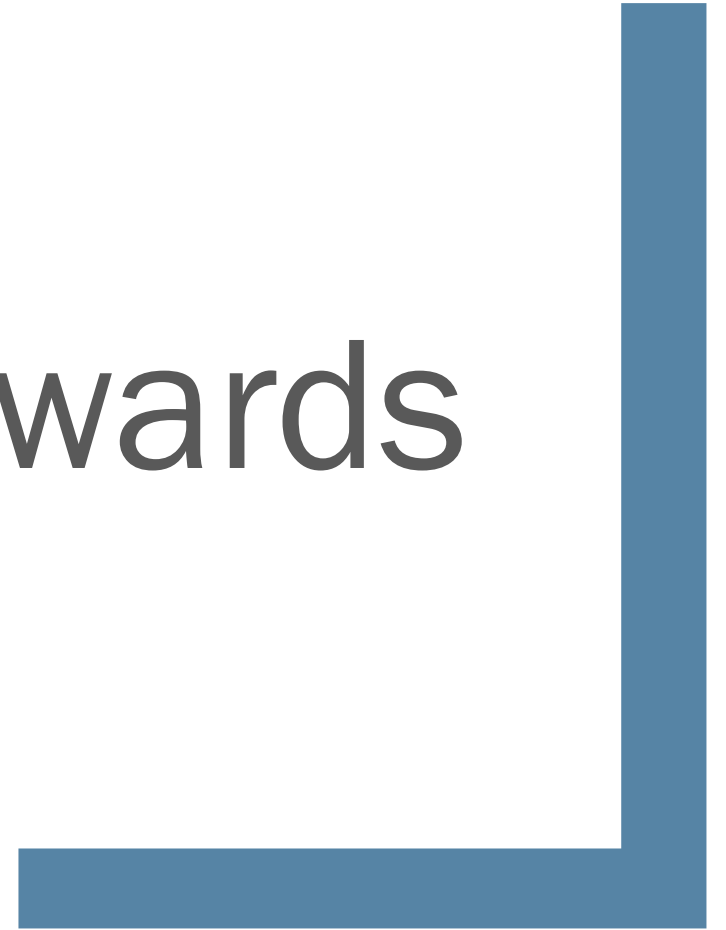
- Goal:
 - *Aims to stimulate the use of technology in research and using e-infrastructure resources in Eastern European countries*
- Builds the visibility of the NRENs with their end-users/research communities (with case studies, PR...)
- Provides e-infra resources BY the NREN or THROUGH the NREN to the researchers
 - *Network requests – capacity upgrades*
 - *Supercomputing resources*
 - *Engagement with other European researchers*
 - *Cloud infrastructure resources*
 - *Presentation and attendance at EaPEC*
- Program offered in 2016, 2017, 2018

→ EYR helps to build communities, use cases, and advocates around the R&E infrastructure

EYR@EaP Program Results

- 35+ proposals
- 7 final projects
- Topics
 - *Biomedical Imaging & Deep Learning*
 - *High Energy Physics*
 - *Geophysics*
 - *Tomography*
 - *EEG*
 - *Environmental Management & Education*
 - *Electro-Acoustic Music Composition & Artistic Research*
- Resources requested
 - *Compute resources in collaboration with PRACE*
 - *Guidance on Open Data and Open Science with OpenAIRE*
 - *Cloud Resources*
 - *Network upgrades*

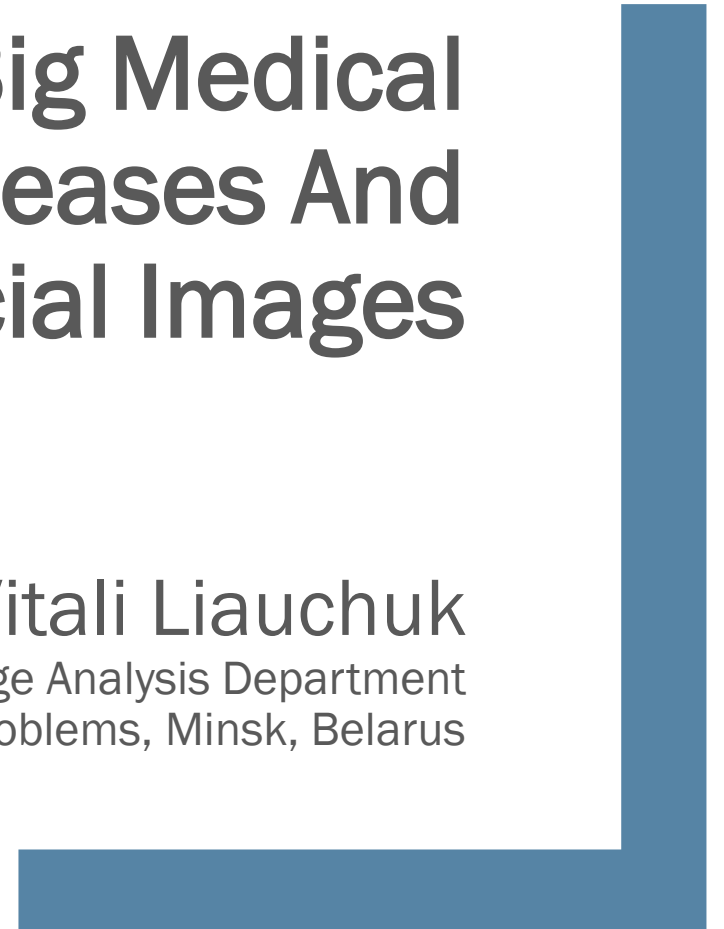
2018 Awards



Deep Learning Applications For Big Medical Image Archives: Detection Of Diseases And Generation Of Artificial Images

Vitali Liauchuk

Biomedical Image Analysis Department
United Institute Of Informatics Problems, Minsk, Belarus





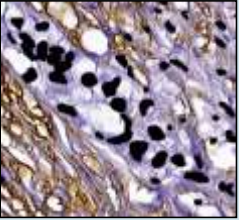
Deep Learning applications for big medical image archives: detection of diseases and generation of artificial images

Vitali Liauchuk

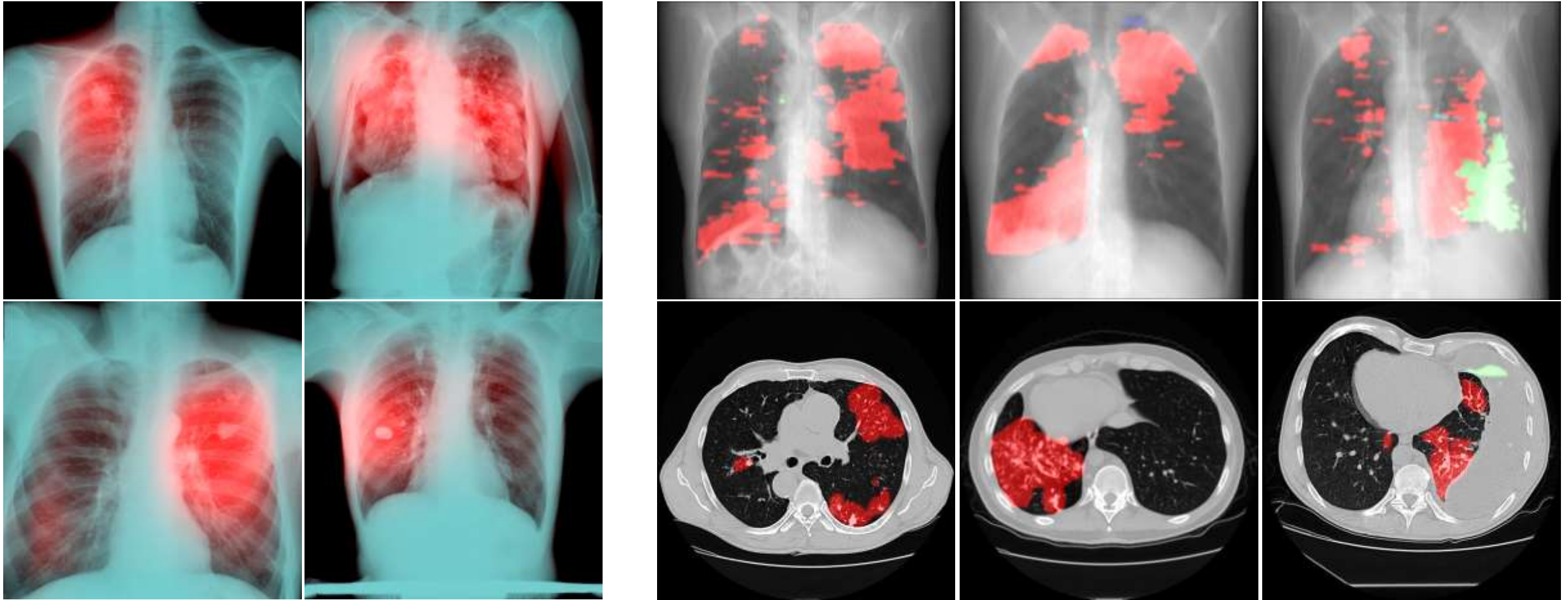
Biomedical Image Analysis Department
United Institute of Informatics Problems, Minsk, Belarus

Chişinău, 2018

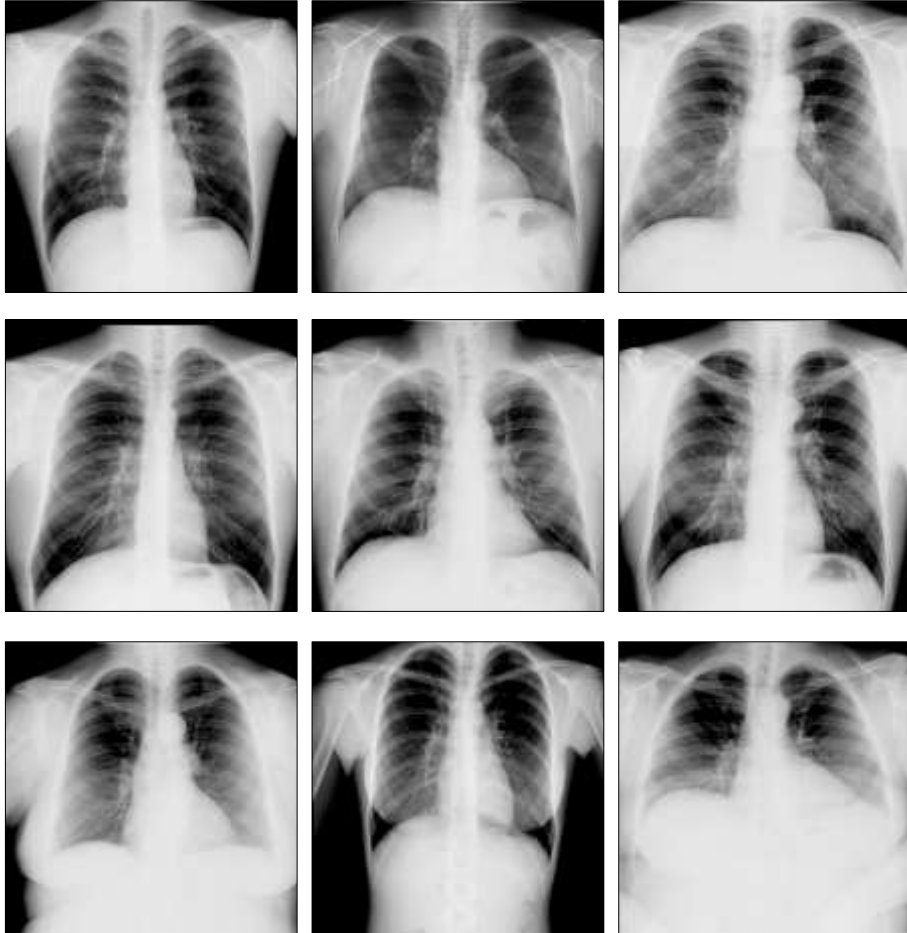
Big Medical Image Data: Our databases (3 examples)

Pictogram	Image type & Number	Image Characteristics	Comments
	1.9 Million of chest X-rays of 1.1 Million of people (900 000 scanned ≥ 2 times). Results of large-scale screening	Quantitative characteristics (image features) can be derived by authors	To our best knowledge, this is the world-largest image collection of its sort
	12 000 CT tomography scans 9 000 patients (+ 4000 CTs by Tuberculosis Type) 1.5 million of 2D image slices	100-300 2D images per scan. Clinical & Genomic data. Viewable at: http://tuberculosis.by/	Most annotated collection of 3D CT scans
	20 000 images, Ovary Cancer 65 Hyper-Large scans by 10 GigaPixels (~2.3 Million of 512x512 image tiles) Angiogenesis antibodies	Leica DMD108 Microscope Leica SCN400 Scanner Size: 2048x1536 Pixels and 100 000x100 000 Pixels	

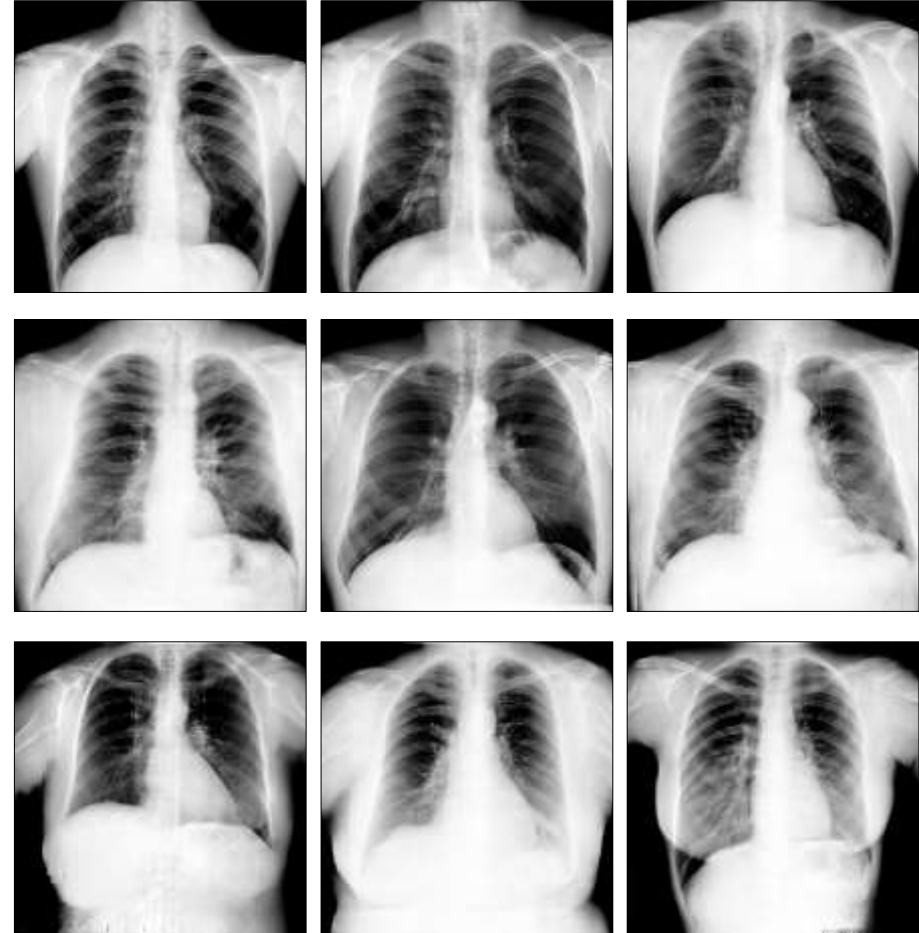
Tasks: Detection of tuberculosis lesions in X-ray and CT



Tasks: Automatic generation of plausible artificial images

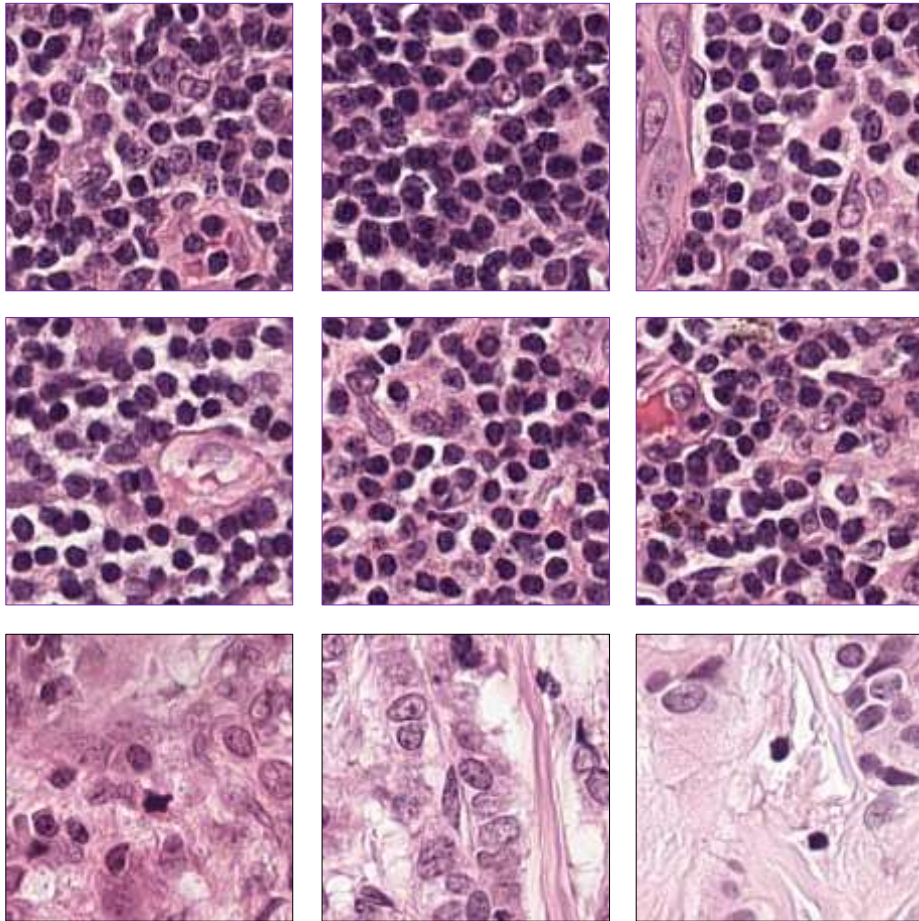


Images of Real people

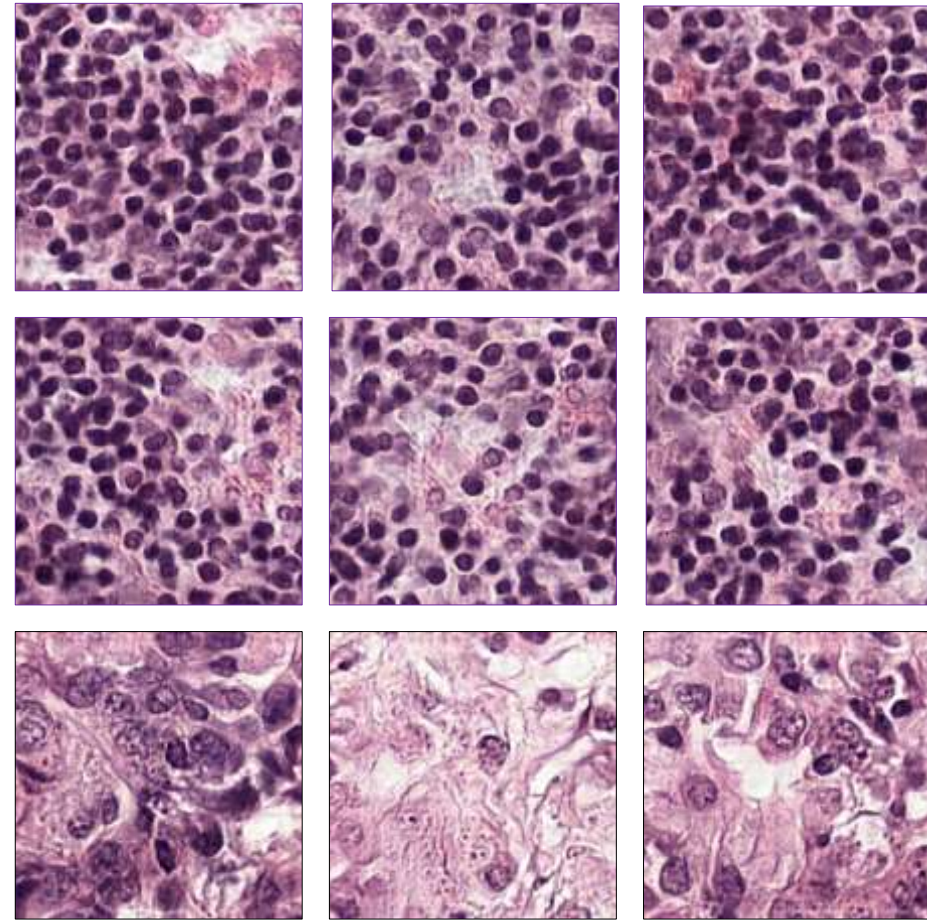


**Artificial images created by
GAN**

Tasks: Automatic generation of artificial images



**Histology images of Real
people**



Artificial Histology images created by GAN

Norm

Cancer

Thank you for your attention



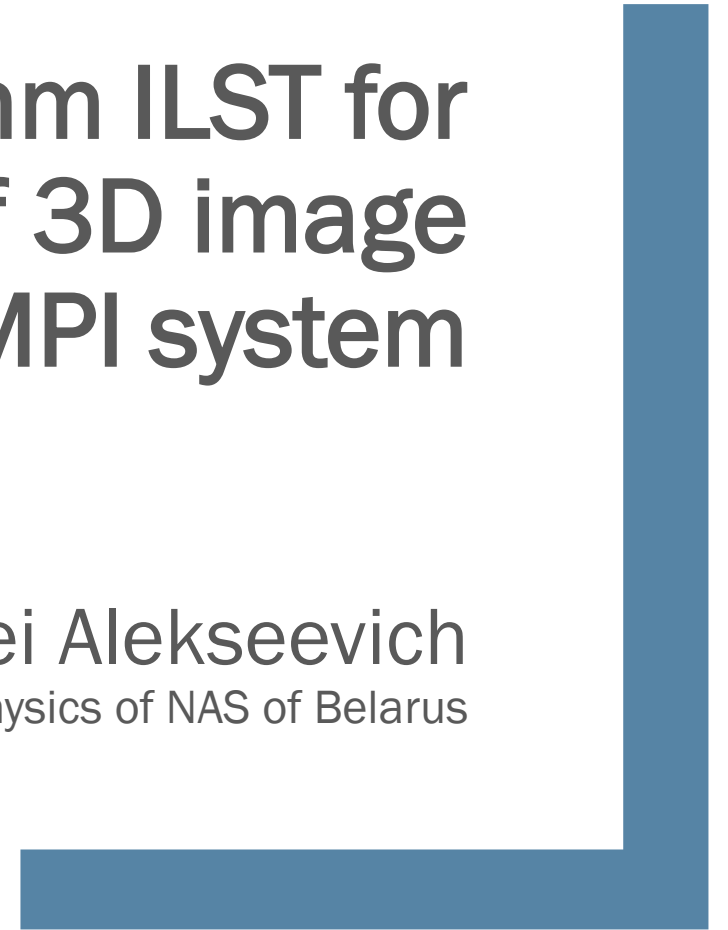
Belarusian WLCG computing facility BY-NCPHEP for research in High Energy Physics

Vitaly Yermolchyk

Institute for Nuclear Problems of Belarusian State University

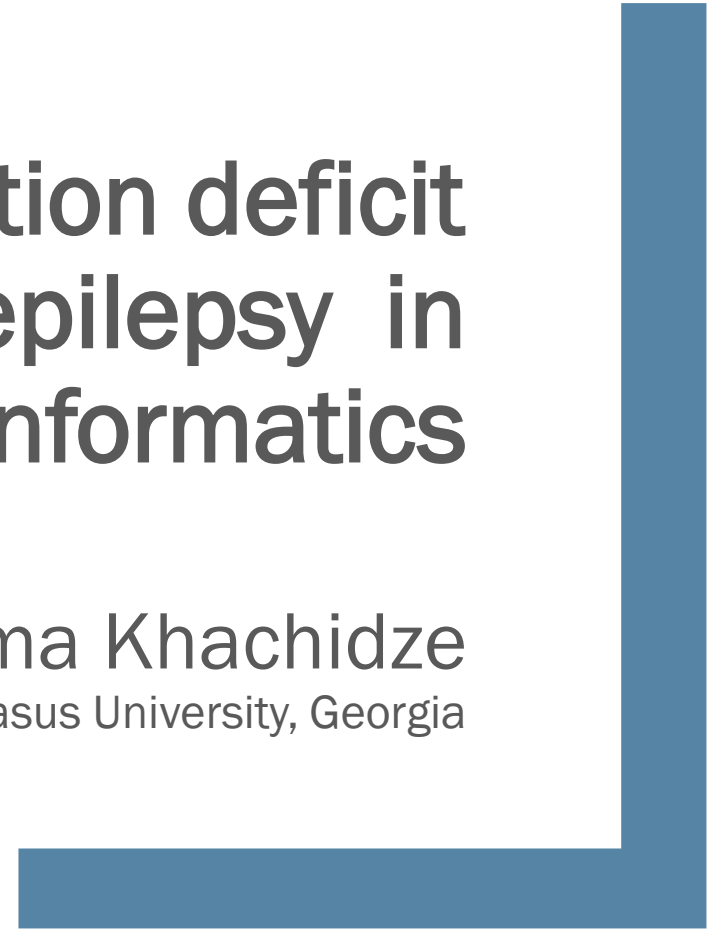
Development of a parallel algorithm ILST for the iterative reconstruction of 3D image based on the MPI system

Zolotarev Sergei Alekseevich
Institute of Applied Physics of NAS of Belarus



Finding EEG biomarkers of attention deficit hyperactivity disorder (ADHD), epilepsy in clinical settings using neuroinformatics

Irma Khachidze
Caucasus University, Georgia



Development of educational programs for different target groups of population on environmental management based on the EU environmental Directives

Dumitru Drumea
NGO "ECOSTREGII", Moldova

Creating A Unified Database Of Well Logs Studying Of Oil And Gas Deposits In Azerbaijan

Hasanov Adalat Badal
Azerbaijan State Oil And Industry University

MIRCO: Music Instruments Renewal via Contemporary Creation

Paolo Girol

Estonian Academy of Music and Theatre

