

Feb. 2016, Varna

Joint Action Health Workforce
Planning and Forecasting

Anatomy of modern medical teaching

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Some issues in contemporary medical education

- A demand for more doctors
- Increased interest in the medical(-alike) professions
- High practical dependence of biomedical teaching
- Inadequate numbers of specialists to teach biomedicine
- Easy access to information

Medical Curriculum

Basic sciences <u>Anatomy</u>	Clinical Sciences
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Anatomy curriculum is undergoing international reformation but the current framework lacks uniformity among institutions



T.S.Eliot:
The Rock (1934)

Where is the wisdom we have lost in knowledge?
Where is the knowledge we have lost in information?



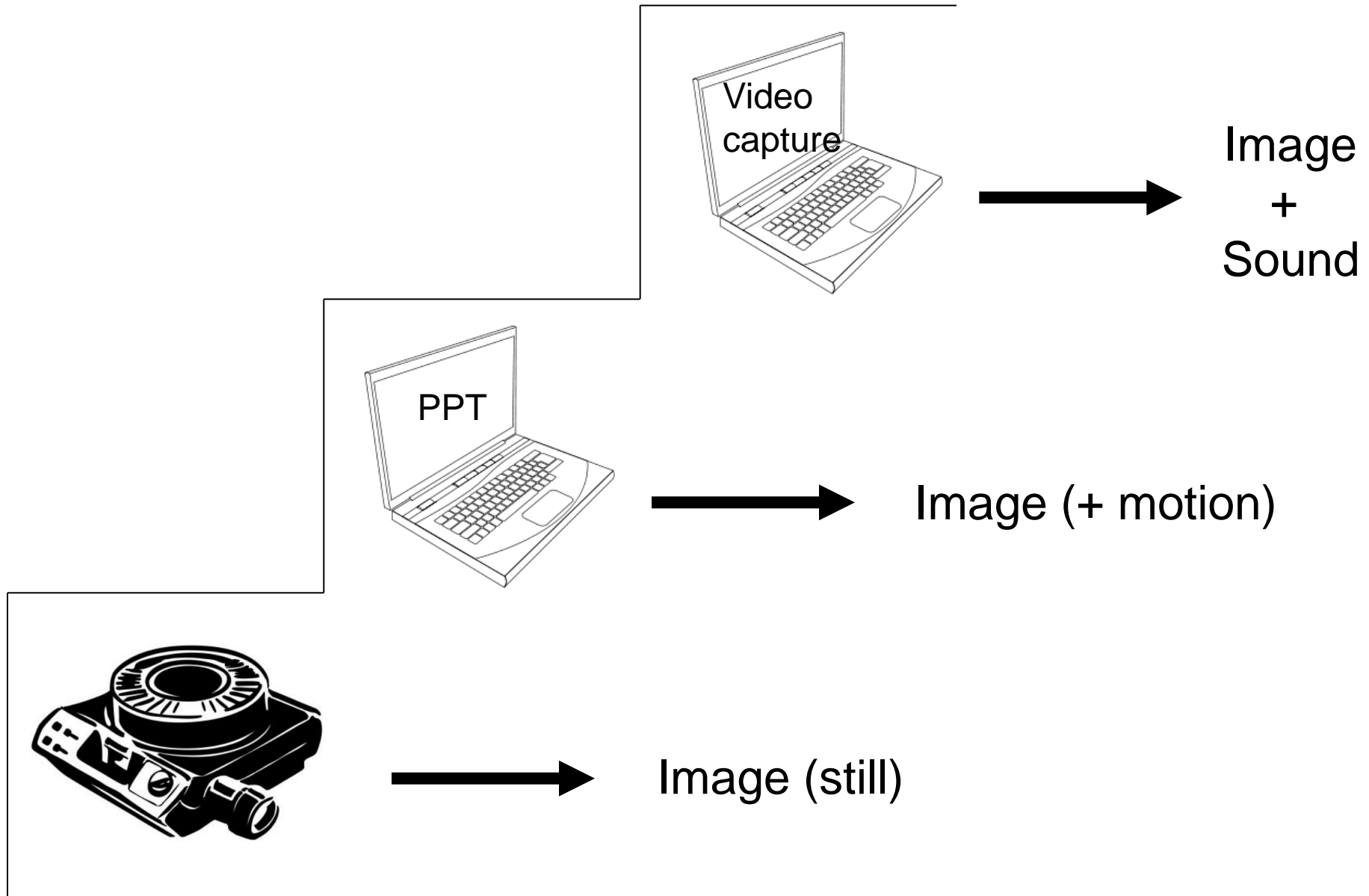
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Organization of the anatomy curriculum in MU-Varna

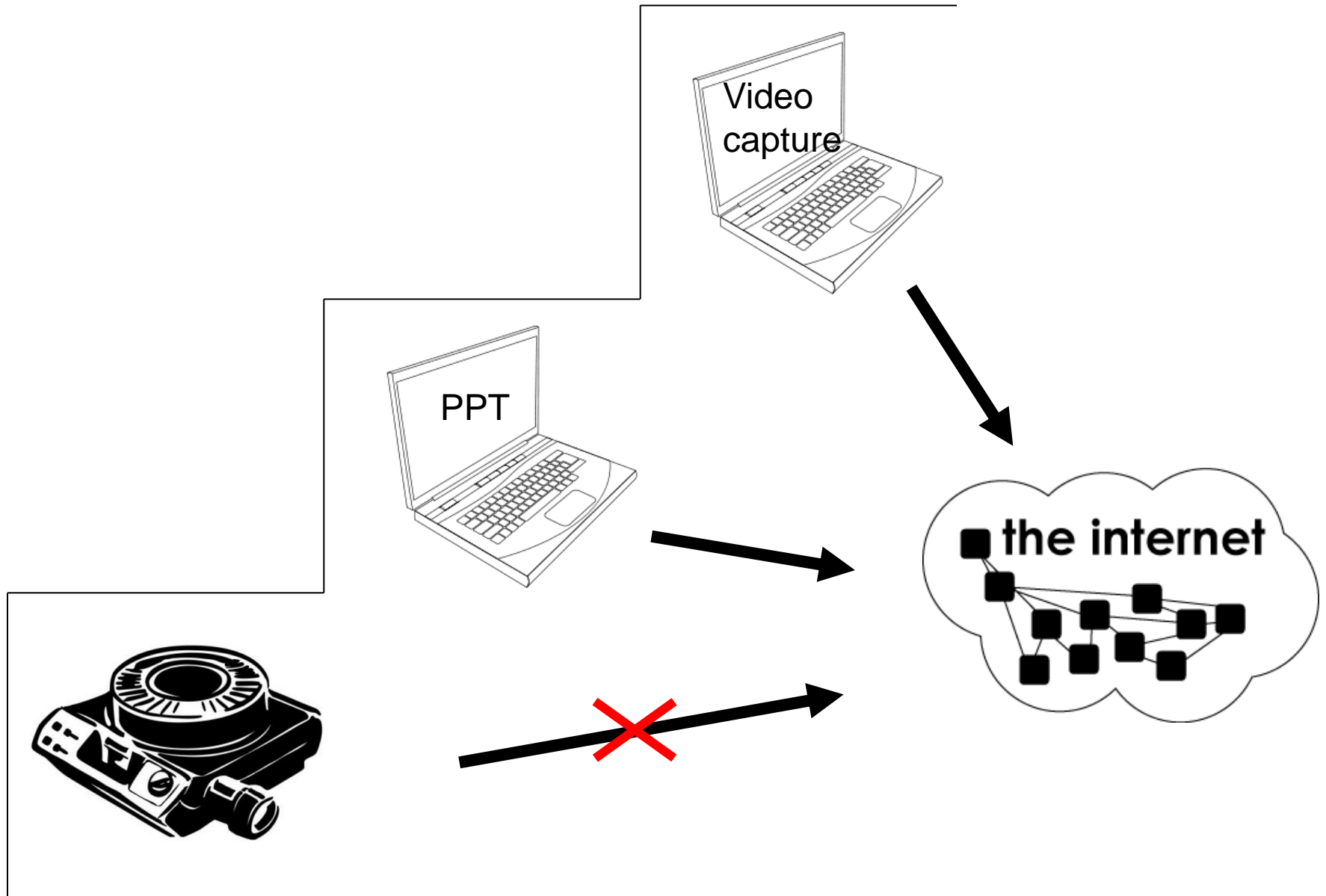
- Lectures – 25% (free)
- Seminars – 75% (obligatory)



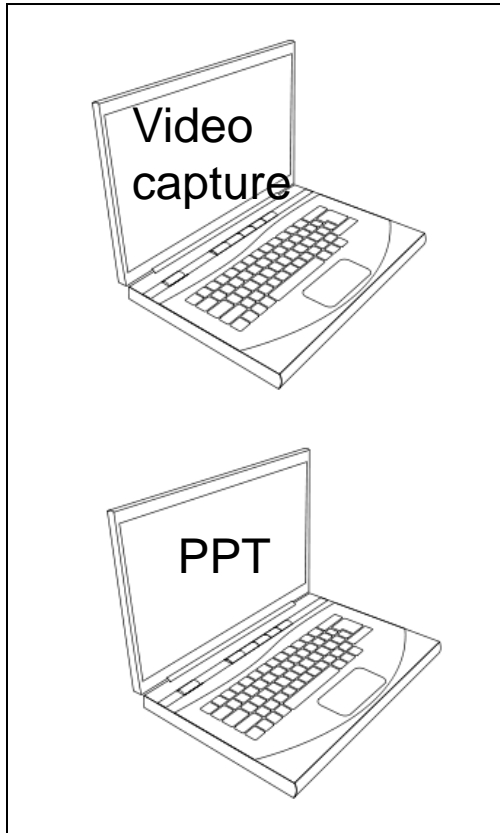
Levels of electronisation of the presentation materials



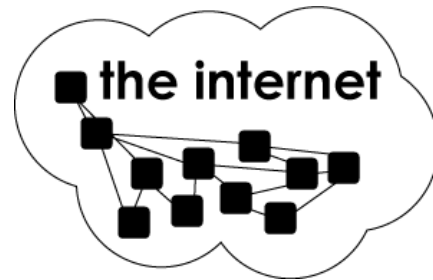
Levels of distribution of the presentation materials



Levels of distribution of the presentation materials

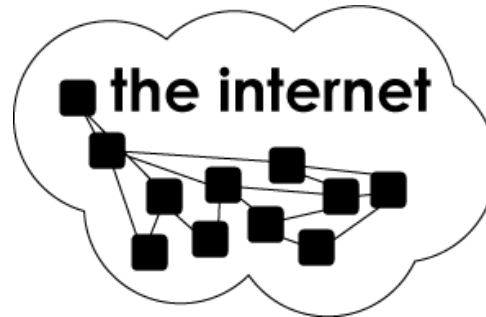
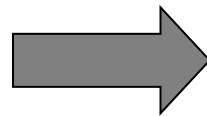
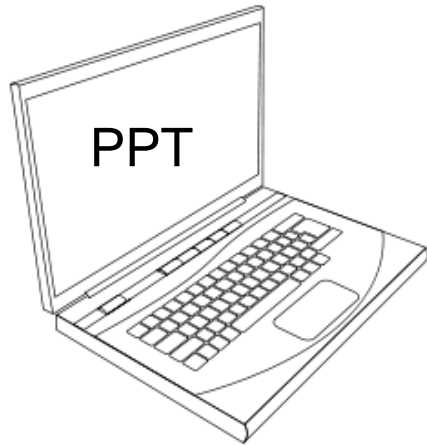


Hall 1

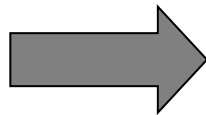
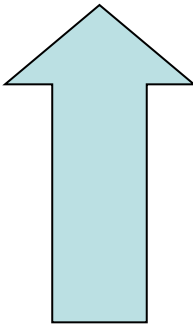


Hall 2

Interaction with students

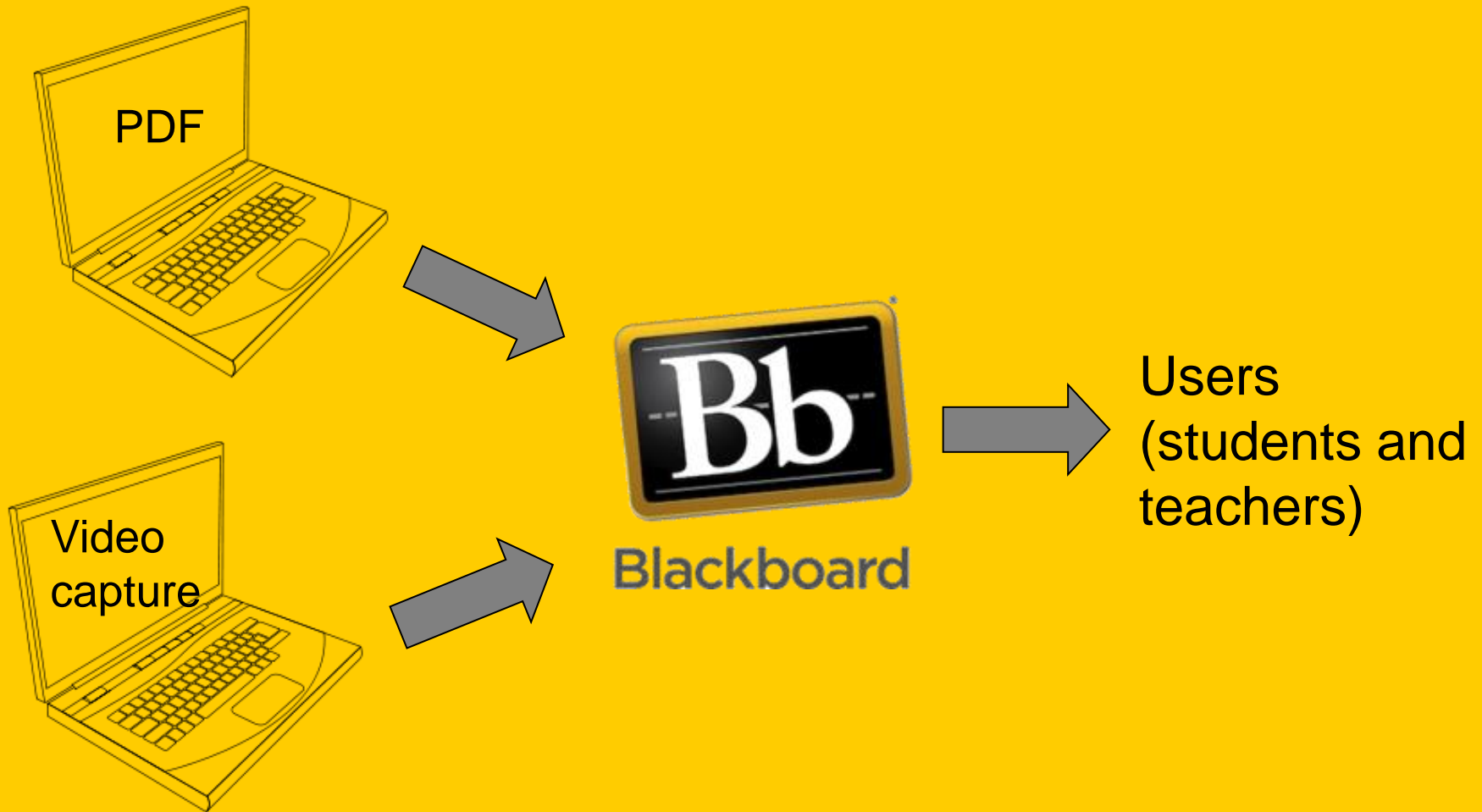


In silico



In vivo

Integration with learning management systems



What changed for the students

Access to all lectures (both text/image and sound).

For each class.

At any time.

Always!

What changed in the structure of the lectures

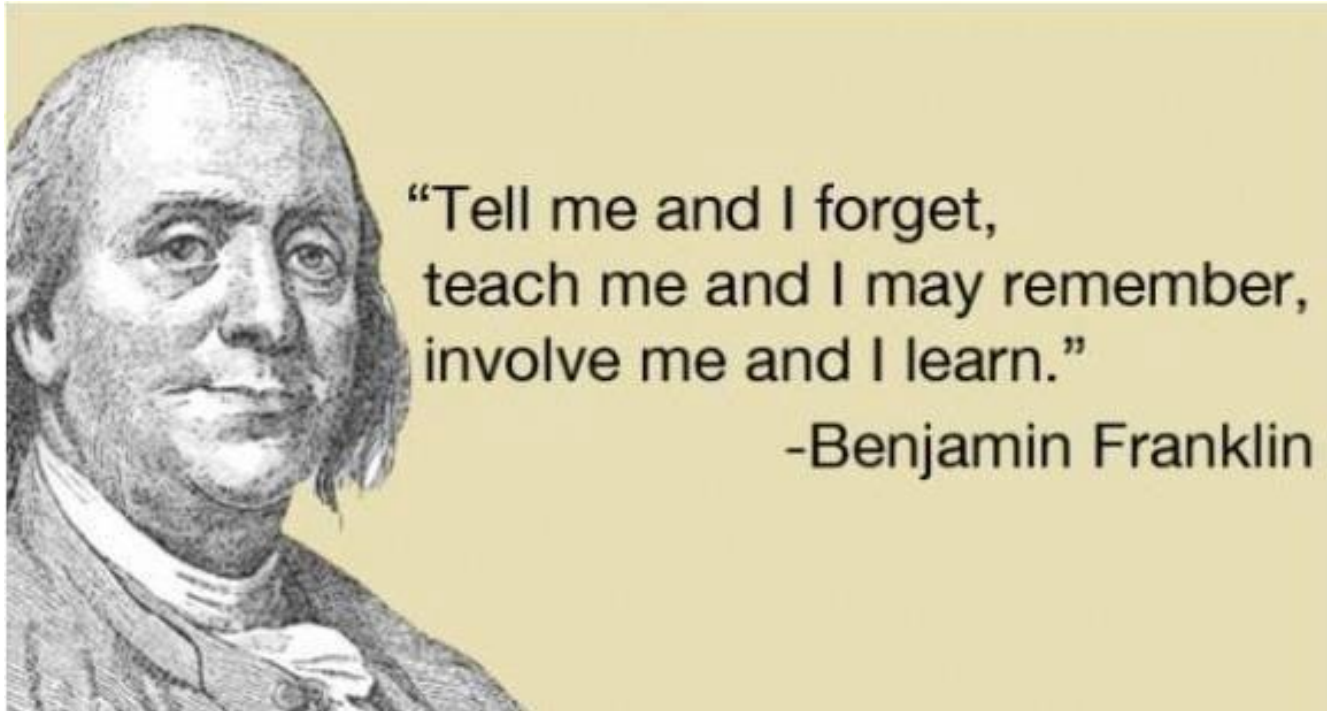
More time for questions.

Focus on complex concepts.

Feedback from students!

What changed in the structure of the lectures

Feedback during lectures via wi-fi devices.



Voting devices

TRIUMPH BOARD®
One Idea Ahead

TB Voting RF500

TRIUMPH BOARD Voting RF500 is powerful and most cost effective Interactive Wireless Audience Response System with LCD display on the market. TRIUMPH BOARD Voting RF500 is fully integrating with Microsoft PowerPoint which makes the use simple and enriches your presentations and classroom curricula by eliciting comments from the audience and encouraging participation.

TRIUMPH BOARD Voting RF500 is used in a classroom, at training sessions, during a focus group or in corporate meetings and by installation is possible to make a choice if use in a school or corporate environment.

With TB Vote's interactive PowerPoint software and the wireless audience remote keypad given to each participant, real-time feedback can be electronically collected to your PC/Notebook at the click of a button.



What changed for teachers

Overview on the presentation of other teachers.

Nearly unlimited time resource.

Focus on concepts not facts.

What changed for teachers

Overview on the students' knowledge during the lectures.

The lectures' message reach all students.

Greater satisfaction of the students.



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Major divisions of anatomy

- Gross anatomy
- Microscopic anatomy



A major aim of gross anatomy seminars

- To give to students 3D vision of the human body that is accessible from everywhere
- To deepen understanding of the relationships of structures in complex objects
- To have a view that relates anatomy to medical imaging

3D anatomy software

Human Anatomy



Cyber-Anatomy Med™ is the world's most advanced medical-level anatomy software.

Built on advanced engineering and gaming technologies. Every structure in the human body was built from the ground up in 3D, culminating in over 4,300 structures and over 13,000 identifiable landmarks. This product is as a result of 7 years of work by a large team of engineers and medical professionals.

Elsevier, the publisher of the world's standards in anatomy (Gray's Anatomy and the Netter Atlas) has selected Cyber-Anatomy to launch the most innovative products



GRAY'S



Cyber-Anatomy Med
PDF Data Sheet




Demo
(COMING SOON!)



Pricing



Email a Cyber-Anatomy
representative for more
information

 Click here to visit the
Interact Elsevier pages

3D virtual reality (VR)

Human Anatomy




Cyber-Anatomy Med VR™ is an innovative system (hardware and software) for interacting with and visualizing anatomy.

The system is built on advanced engineering and simulation technologies. Building upon the award winning software application called Cyber-Anatomy Med™, this system allows users to see in 3D, perceiving spatial relationships like never before.

Elsevier, the publisher of the world's standards in anatomy (Gray's Anatomy and the Netter Atlas) has selected Cyber-Anatomy to launch the most innovative products



 [Click here to visit the Interact Elsevier pages](#)



[Cyber-Anatomy Med VR™ PDF Data Sheet](#)



[Demo \(COMING SOON!\)](#)



[Pricing](#)



[Email a Cyber-Anatomy representative for more information](#)

3D virtual reality (VR)





A non-VR version is accessible via the Blackboard system

Medical University "Prof. Dr. Paraskeva Stoyanova"

Cyber Anatomy

Edit Mode is: **ON**

Cyber Anatomy

Build Content ▾ Assessments ▾ Tools ▾ Partner Content ▾ Discover Content ↑↓

Cyber Anatomy

Enabled: Statistics Tracking
Мрежова версия на Cyber Anatomy. Максимален брой потребители - 30.

За да пуснете програмата трябва да позволите на Mozilla Firefox (от малкото щитче вляво от адресната лента) или Chrome (от малкото щитче вдясно от адресната лента) да изпълни скрипта и трябва да инсталирате (еднократно) unity web player, когато бъдете поканени от програмата.

Server version of Cyber Anatomy. Maximum users - 30.

In order to access the server one must first allow the execution of the script from the small shield to the left of the address bar in Mozilla Firefox or to the right of the address bar in Chrome, and install Unity Web Player on the first run when one is asked to.

Анатомия и хистология на човека / Human Anatomy and Histology // спец. Медицина / Medicine_M

Home Page

Information ⓘ

Content

Discussions

Groups

Tools

Help

Cyber Anatomy

Виртуална микроскопия/Virtual Microscopy

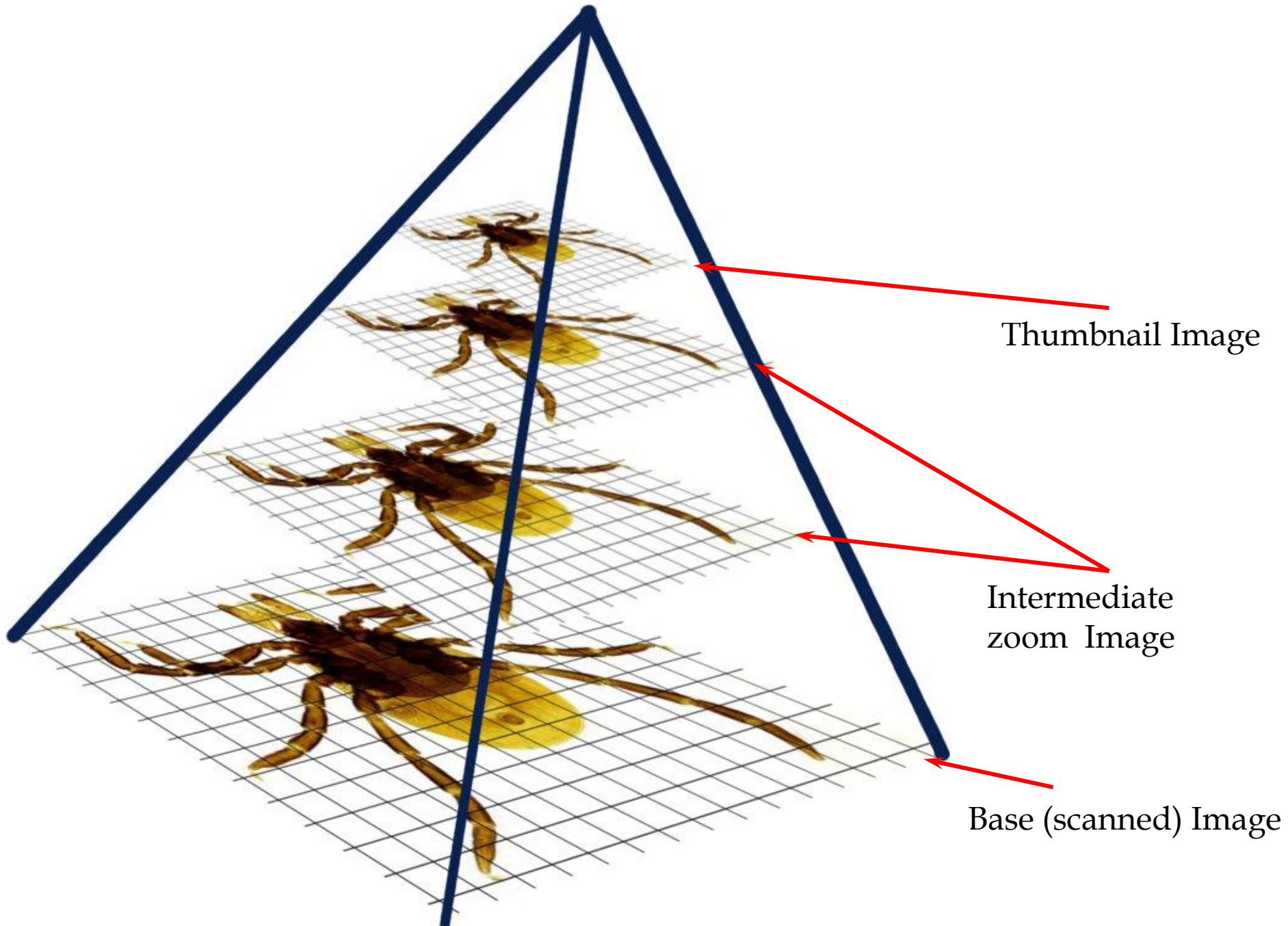
Virtual microscopy is accessible via the Blackboard system

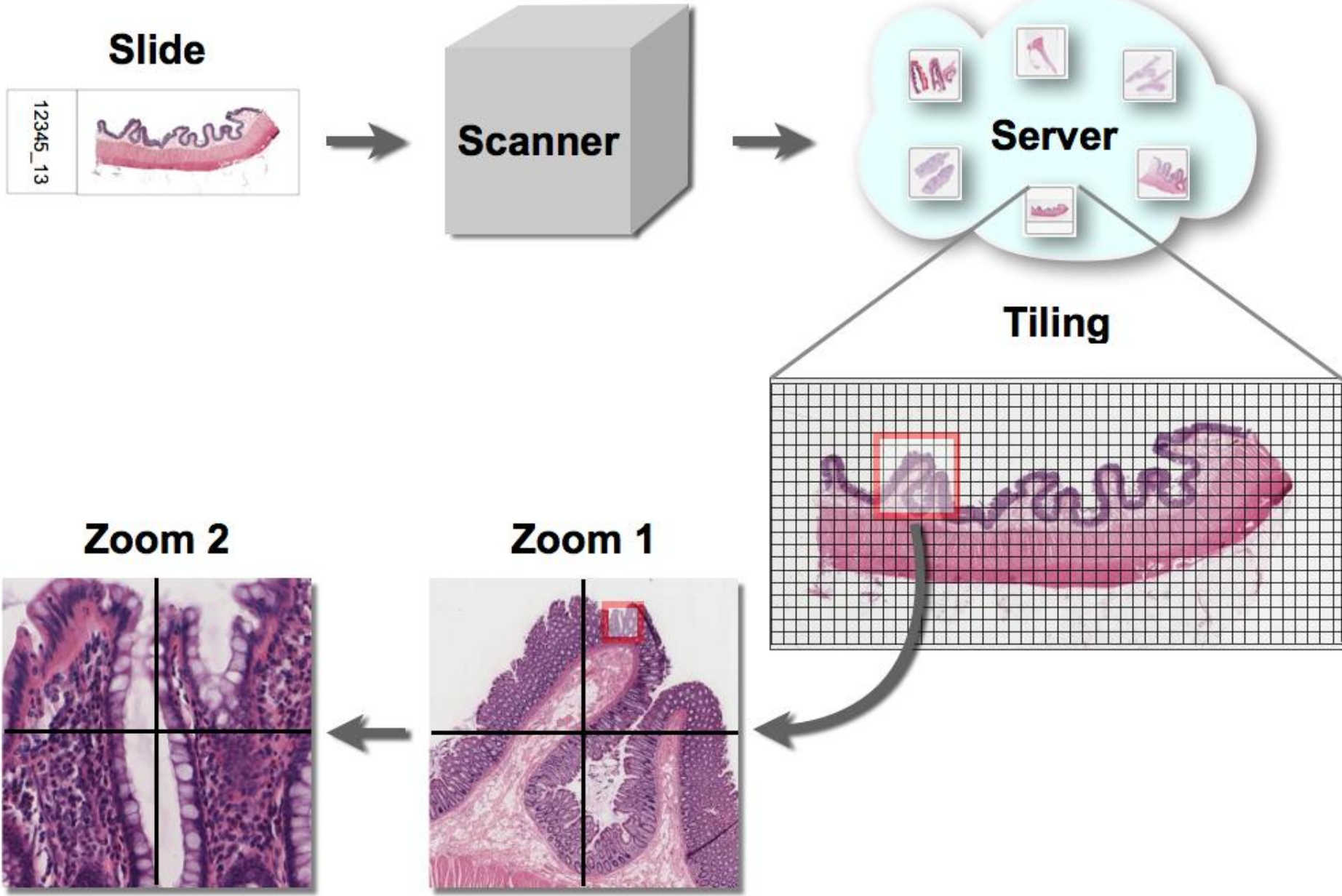
СОНОЕ

Slide	Name	Objective	Stain	View
1	Кръвна натривка / Blood smear	100x	Wright	
1	Базофилен гранулоцит/Basophile granulocyte-01	100x	Wright	
1	Базофилен гранулоцит/Basophile granulocyte-02	100x	Wright	
1	Базофилен гранулоцит&Jung(Stab)-клетка/Basophile granulocyte&Jung(Stab)cell	100x	Wright	
1	Еозинофилен гранулоцит/Eosinophile granulocyte	100x	Wright	
1	Малък лимфоцит / Small lymphocyte	100x	Wright	

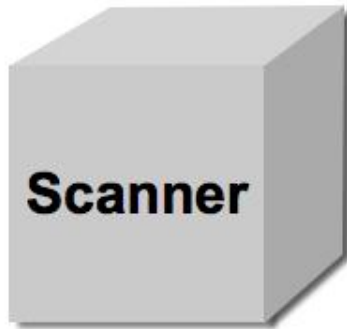
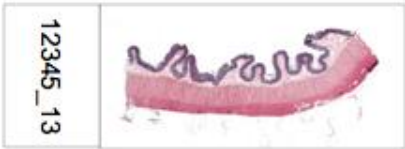
Virtual microscopy

- Digital conversion of light microscopic specimens in full resolution and their presentation over a computer network
- “virtual” == examination of the specimens without direct contact to the object slide or the light microscope.
- “high-resolution digital microscopy” is more precise, but less frequently used





Slide

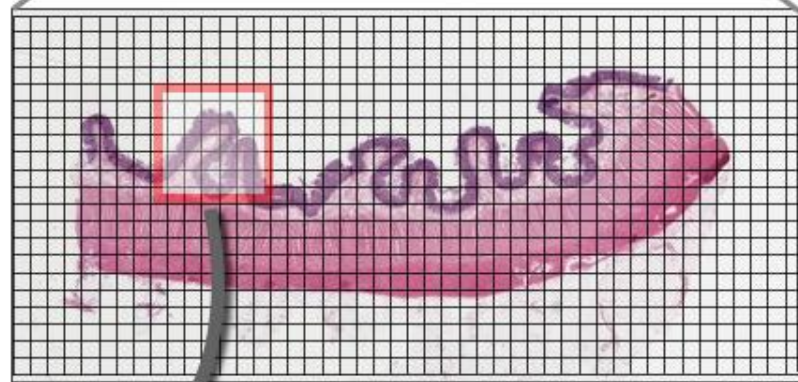


Scanner

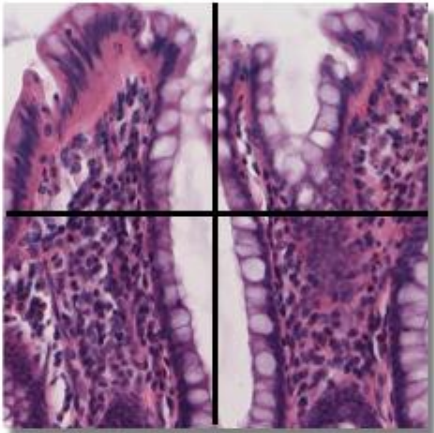


Server

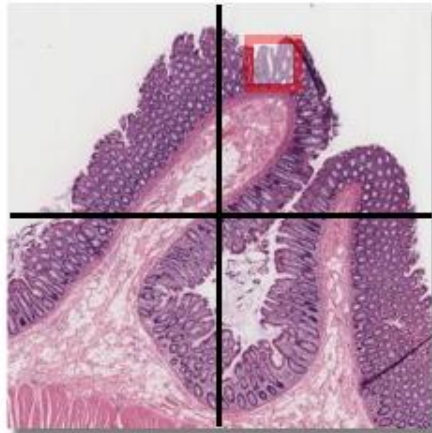
Tiling



Zoom 2

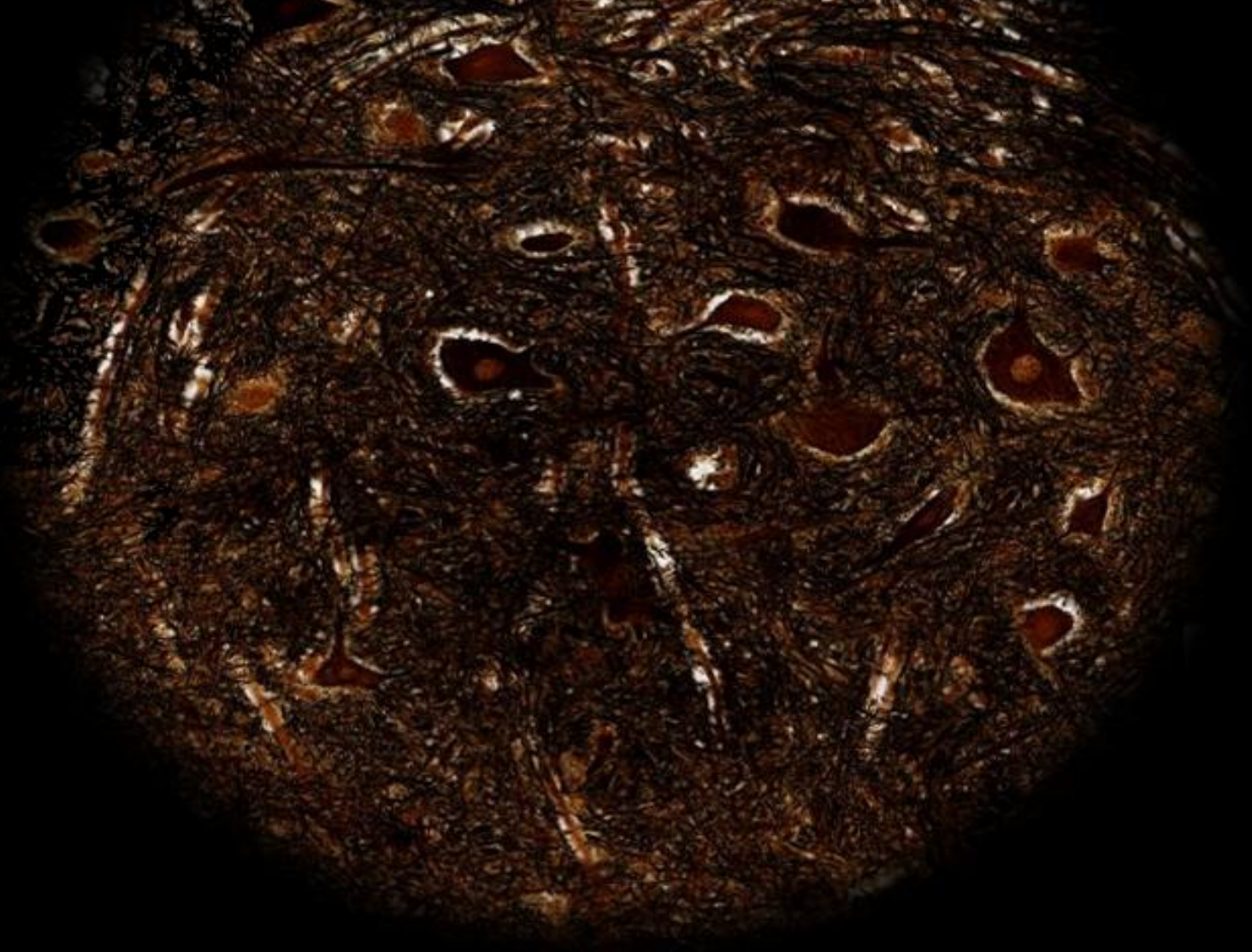


Zoom 1

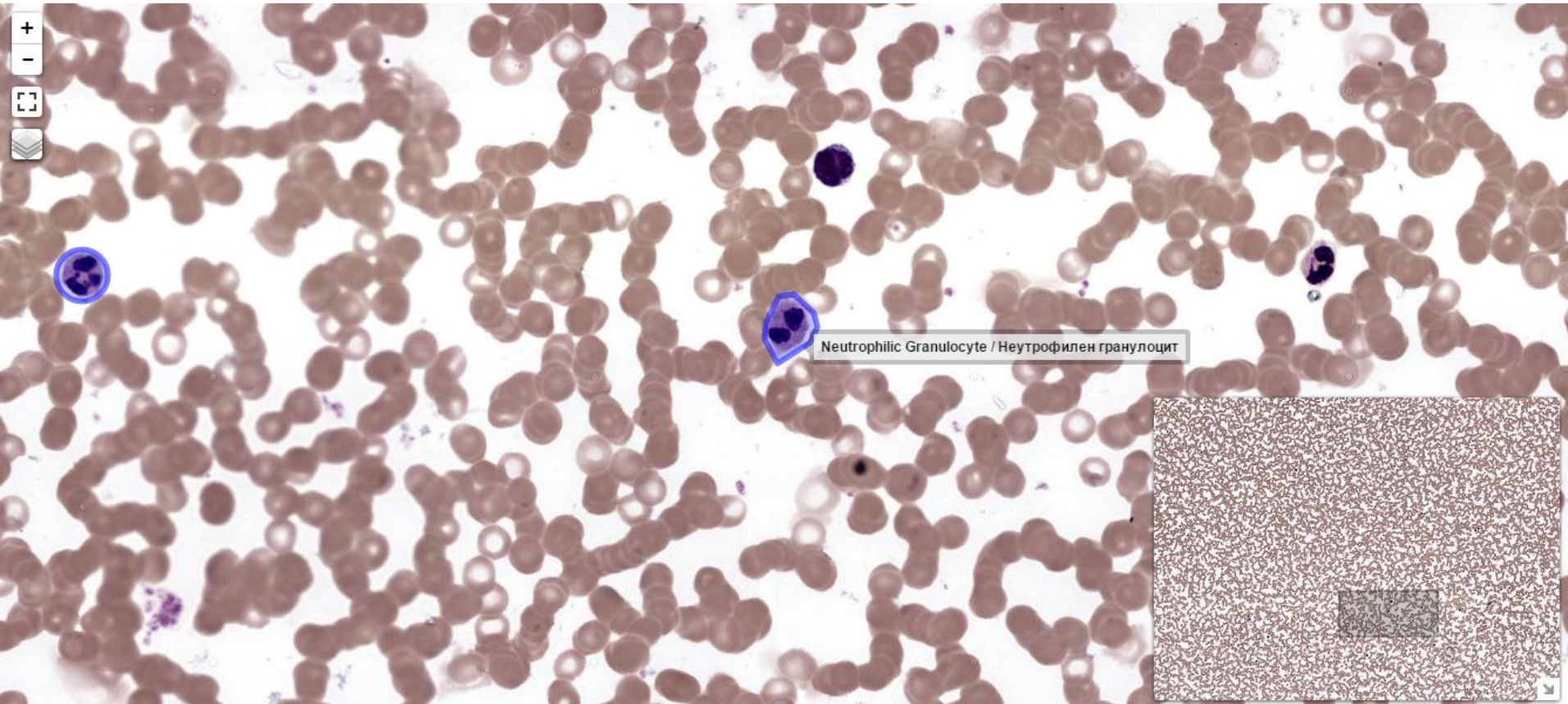


User experience

Conventional microscopy



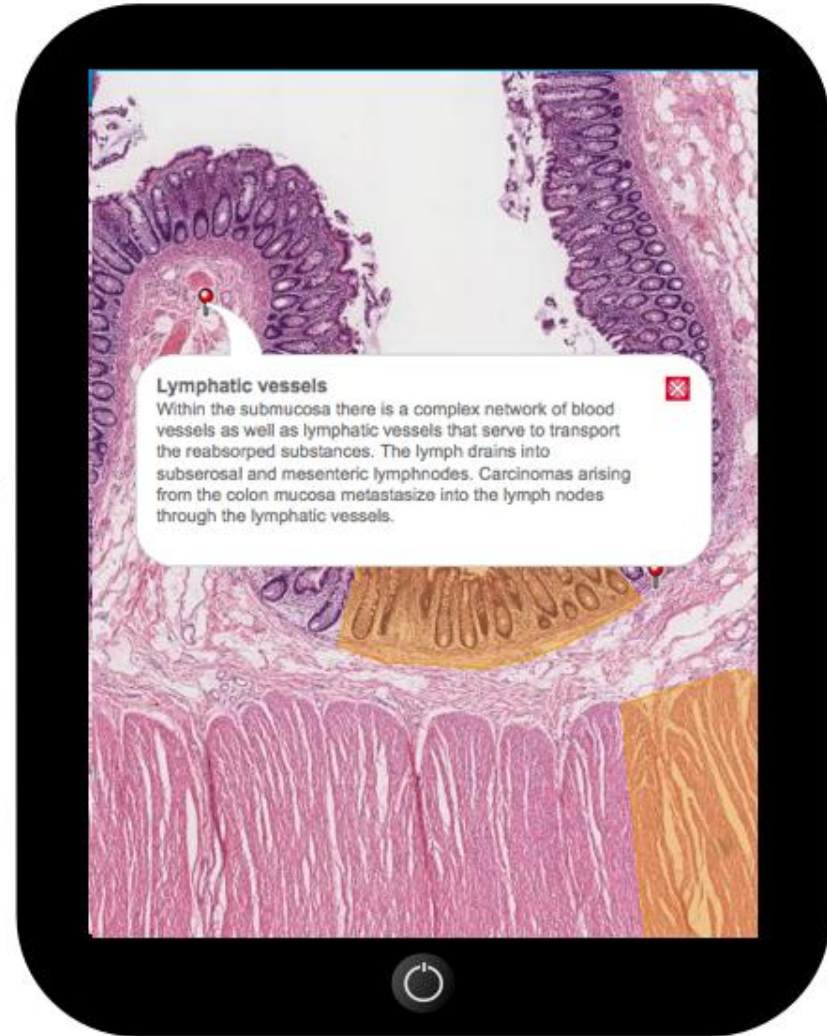
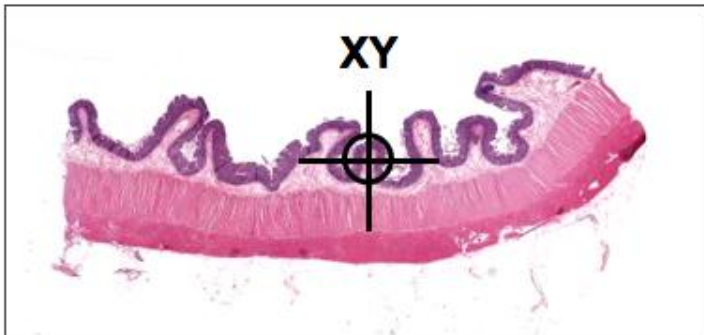
How does VM look like?



Text editor

Lymphatic vessels

Within the submucosa there is a complex network of blood vessels as well as lymphatic vessels that serve to transport the reabsorbed substances. The lymph drains into subserosal and mesenteric lymphnodes. Carcinomas arising from the colon mucosa metastasize into the lymph nodes through the lymphatic vessels.





Conclusions

- More students = more money
- More students - less quality?
- More students - same quality?
- More students – better quality?



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Thanks! Questions?

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