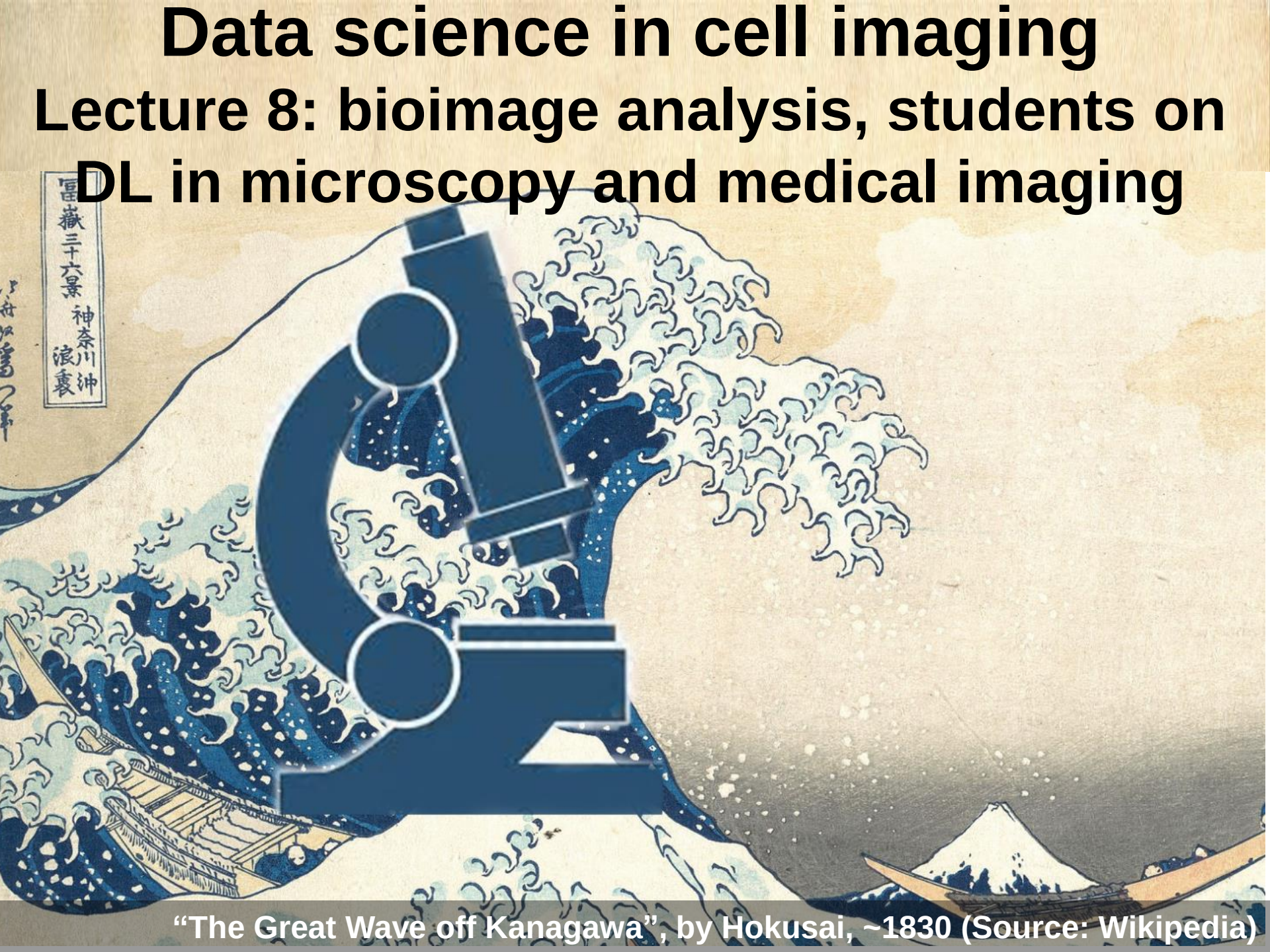
Data science in cell imaging

Lecture 8: bioimage analysis, students on DL in microscopy and medical imaging



"The Great Wave off Kanagawa", by Hokusai, ~1830 (Source: Wikipedia)

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PPTX slides available here

Last week

- Guest lecture: Tammy Riklin Raviv, EE, BGU on computer vision in microscopy
- Interpretable deep learning of label-free live cell images uncovers functional hallmarks of highly-metastatic melanoma
  - Now available in biorxiv here summary here

Today

- Kota Miura, Bioimage Analyst, NEUBIAS, on bioimage analysis (English), 17:10! slides
- Students lectures:
  - Oron Barazani - DL in microscopy
    - Deep learning enables cross-modality super-resolution in fluorescence microscopy. Hongda Wang, Yair Rivenson,..., Aydogan Ozcan (2019), slides
  - Shani Kleiman - medical imaging
    - Prediction of cardiovascular risk factors from retinal fundus photographs via deep learning. Poplin, Varadarajan,..., Peng, Webster (2018), slides

Guest lecture
Kota Miura on bioimage analysis

Research Interests

Bioimage Analysis (≠ Image Analysis)

Kota Miura

International Christian University (Tokyo, BLA), Osaka University (Master of Physiology), LMU (Zoological Institute, Munich, Ph.D.), EMBL (Heidelberg, Postdoc & Staff scientist), National Institutes of Natural Sciences (Tokyo, Associate Professor). He now works as a freelance analyst, associated with Heidelberg University as a visiting bioimage analyst and the vice-chair of the Network of European Bioimage Analysts (Neubias).

neubias
network of european bioimage analysts

Next week 27.5

- Student lectures:
  - Liat Cohen - DL in microscopy
    - Noise2Void, Probabilistic Noise2Void, joint denoising and segmentation. Florian Jug lub (2019-20)
  - Yishaia Zabary - cell shape analysis
    - Comparison of quantitative methods for cell-shape analysis. Pincus and Theriot (2007)
- Guest lectures: Yaron Gurovich, Vimeo Former CTO & head of AI @ FDNA
  - Identifying facial phenotypes of genetic disorders using deep learning. Gurovich et al. (2019)