Mit 100 Zeilen Code gegen Krebs

Digitale Pathologie und künstliche Intelligenz

Bundesministerium
für Bildung
und Forschung

JG|U UNIVERSITÄTSmedizin.
MAINZ

Source: https://www.pexels.com/de-de/foto/alt-alter-altere-brille-432722/

Dickdarmkrebs

- Zweithäufigster bösartiger Tumor überhaupt
- Über 1 Millionen Betroffene
- Genauso „tödlich“ wie ein Schlaganfall

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“Pathologist - The Doctor`s Doctor“

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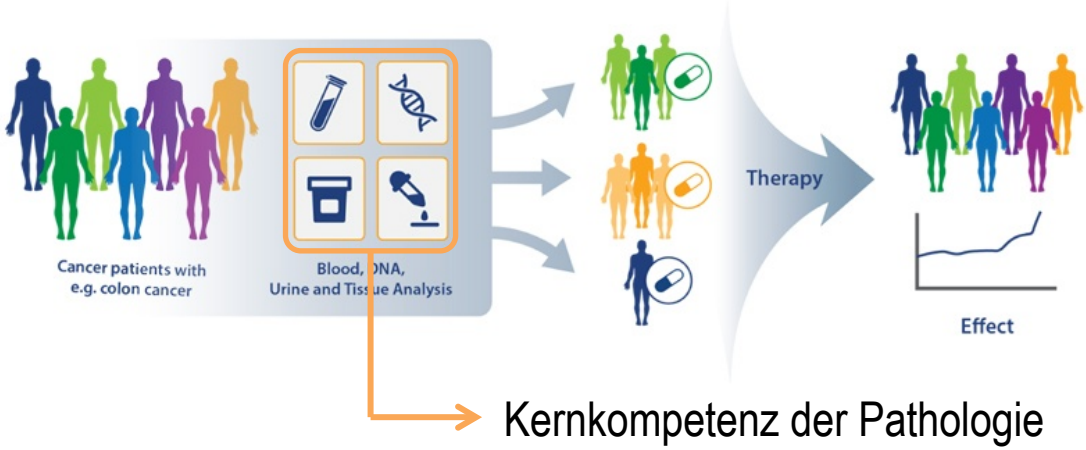
Source: https://www.pathologie-dgp.de/pathologie/was-ist-pathologie/

Personalisierte Medizin

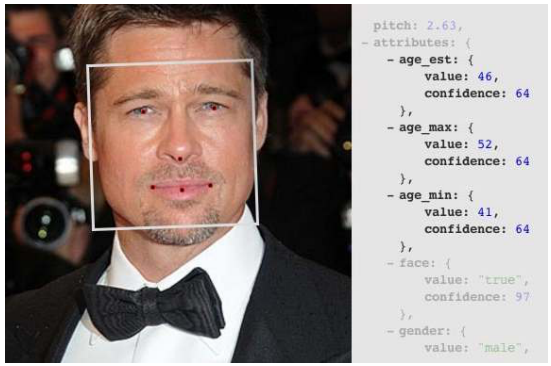


Source: https://blog.crownbio.com/pdx-personalized-medicine#_

KI und Maschinenlernen

Google Assistant

alexa




```
pitch: 2.63,
- attributes: {
  - age_est: {
      value: 46,
      confidence: 64
    },
  - age_max: {
      value: 52,
      confidence: 64
    },
  - age_min: {
      value: 41,
      confidence: 64
    },
  - face: {
      value: "true",
      confidence: 97
    },
  - gender: {
      value: "male",
```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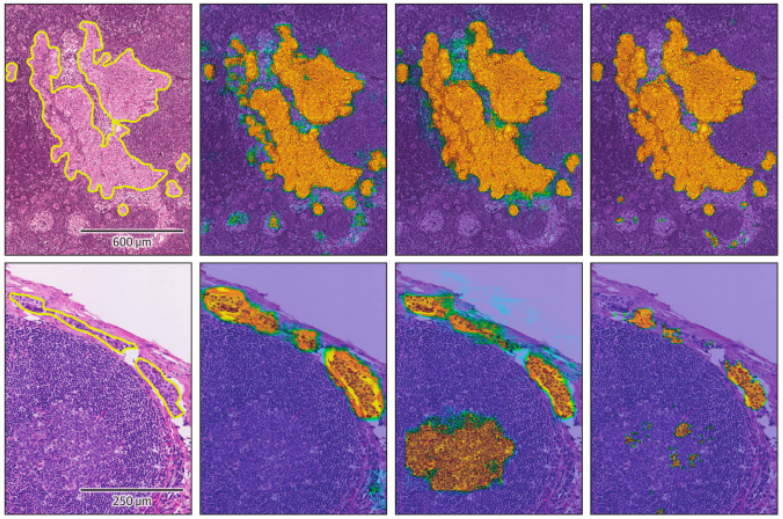
Source: Google Image Search

KI und Maschinenlernen



For abbreviations, see the legend of Figure 3. The color scale bar (top right) indicates the probability for each pixel to be part of a metastatic region. For additional examples, see eFigure 5 in the Supplement. A, Four annotated micrometastatic regions in whole-slide images of hematoxylin and eosin–stained lymph node tissue sections taken from the test set of Cancer Metastases in Lymph Nodes Challenge 2016 (CAMELYON16) dataset. B-D, Probability maps from each team overlaid on the original images.

Bejnordi et al. JAMA 2017

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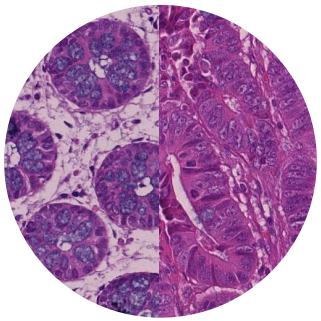
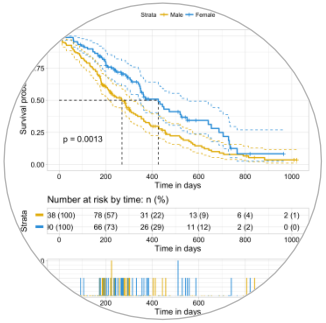
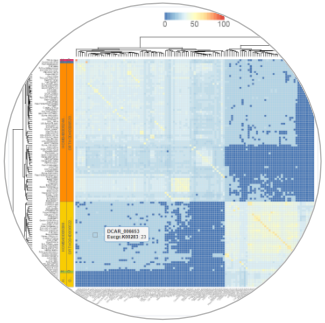
Vier Schwerpunkte



Normal- vs. Tumorgewebe



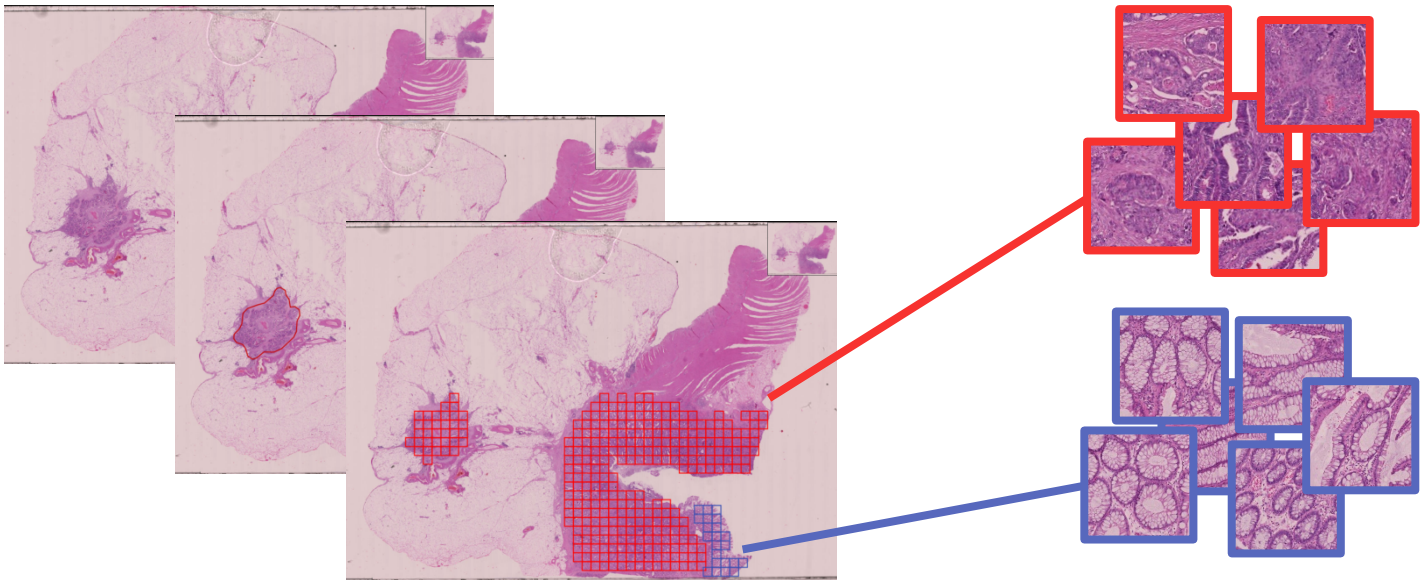
Vorhersage Prognose



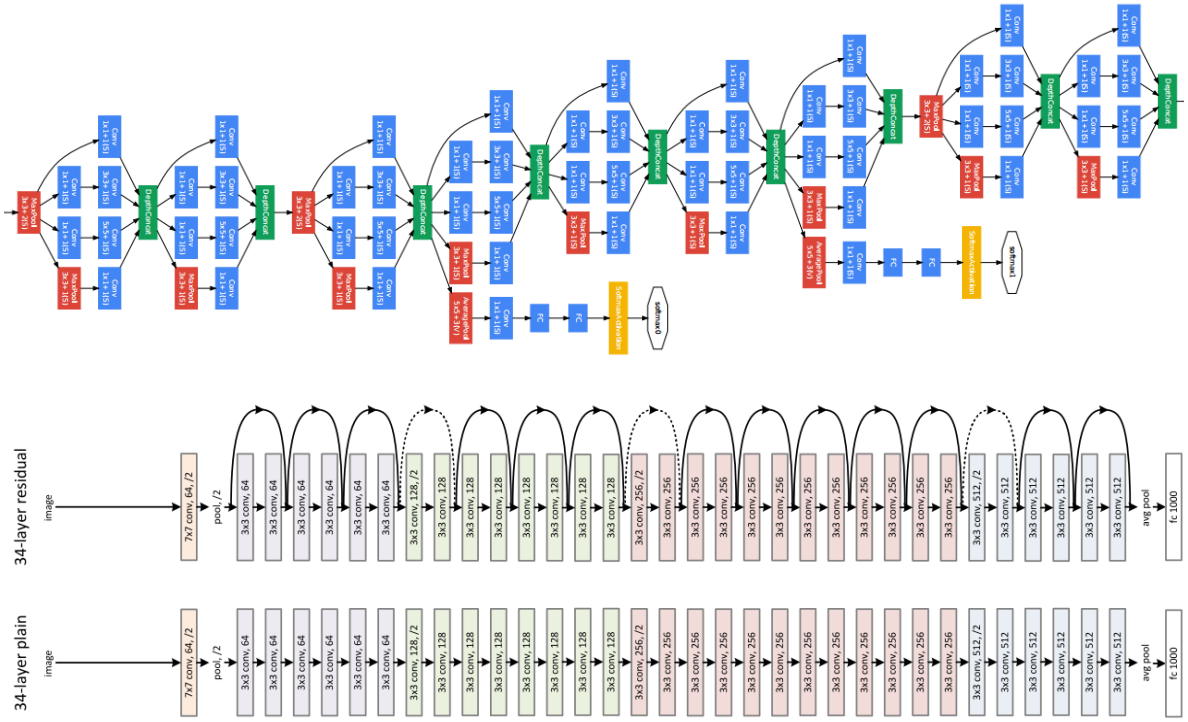
Mutationen & Mutationslast

Vorhersage Therapie-ansprechen

Datenverarbeitung



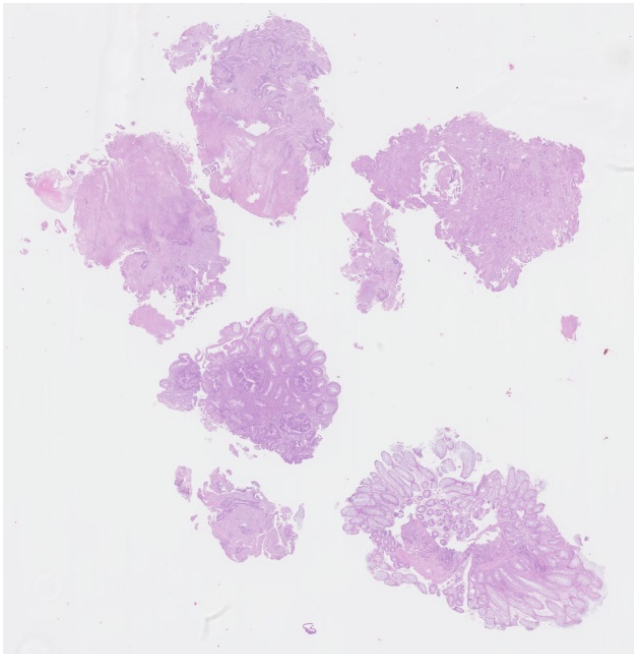
Tiefe Neuronale Netze

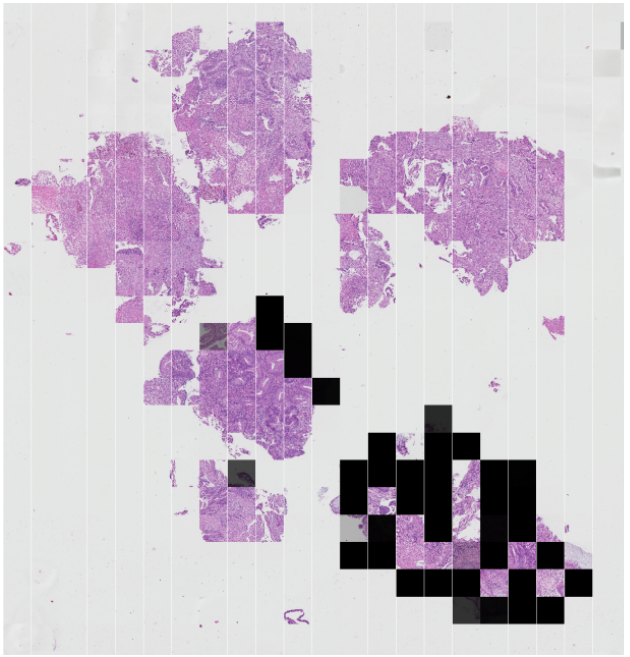


He K, Zhang X, Ren S, Sun J (2015) Deep Residual Learning for Image Recognition.
Szegedy C, Liu W, Jia Y et al (2014) Going Deeper with Convolutions.

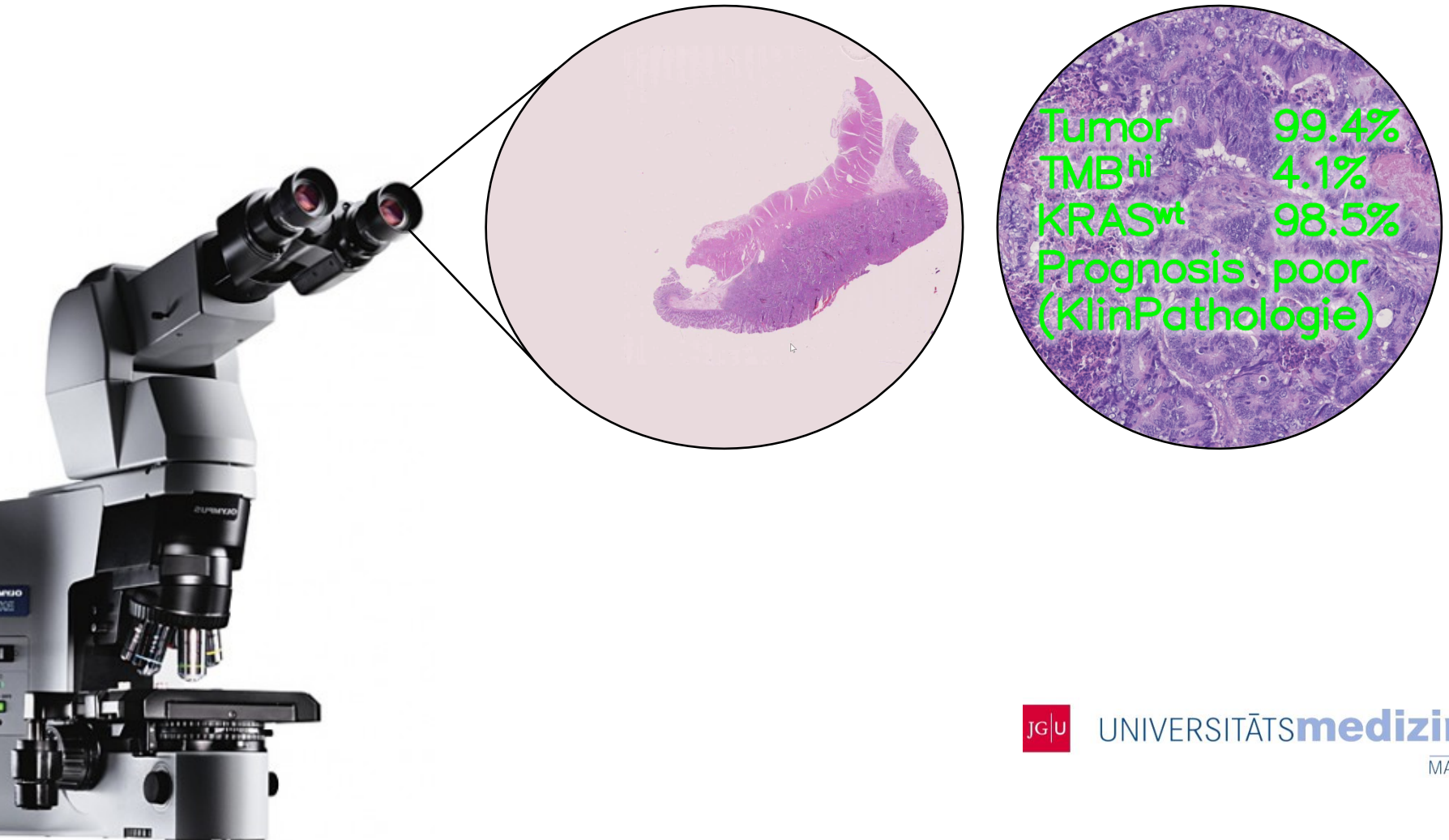
Normal- vs. Tumorgewebe

Normal- vs. Tumorgewebe





Clinical Decision Support System



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AI-Startup

(coming soon ...)