

AI-RON

AI-assisted
morphomolecular
Precision Medicine in
Neurooncology

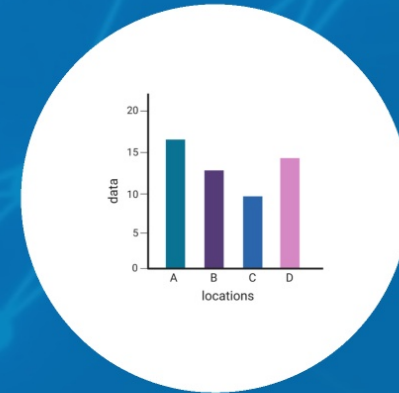
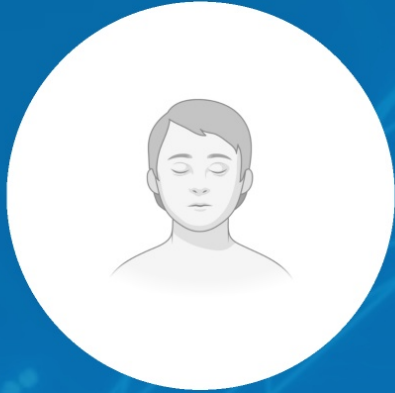
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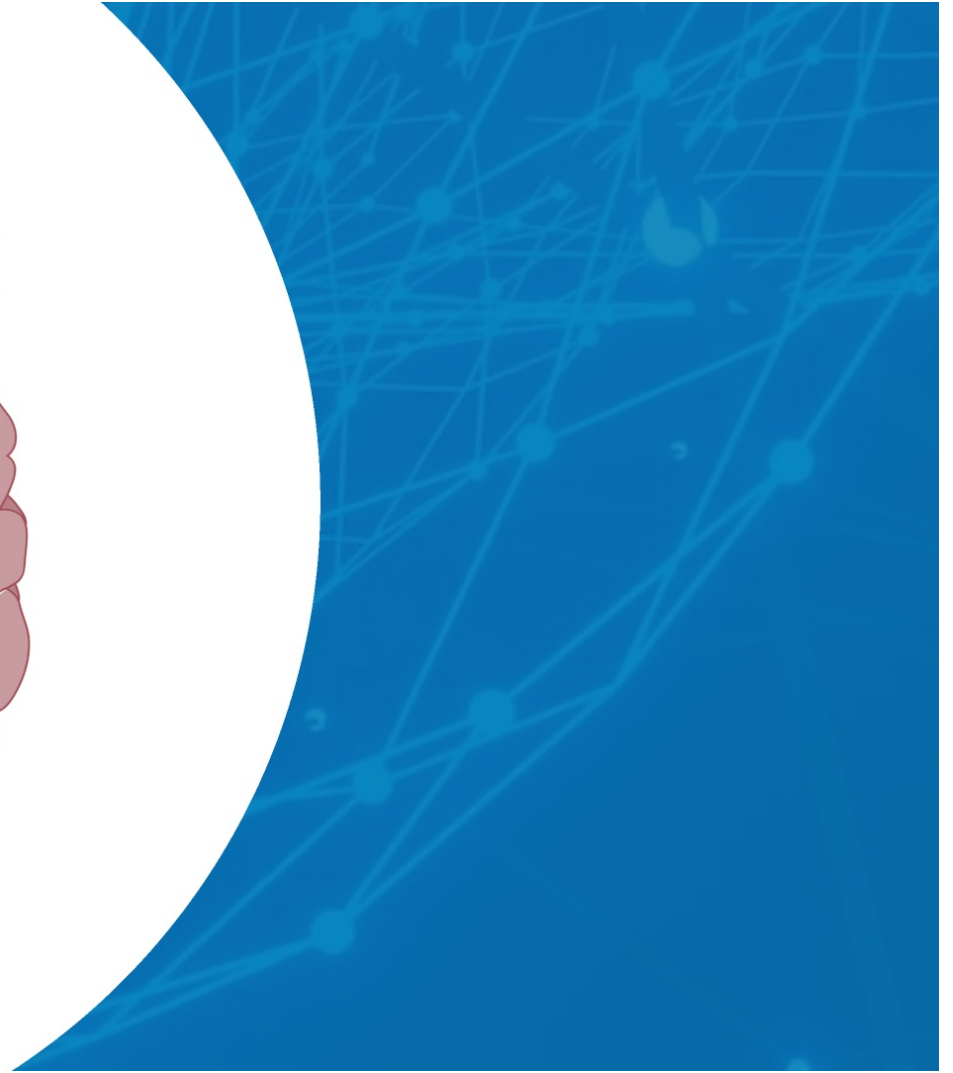
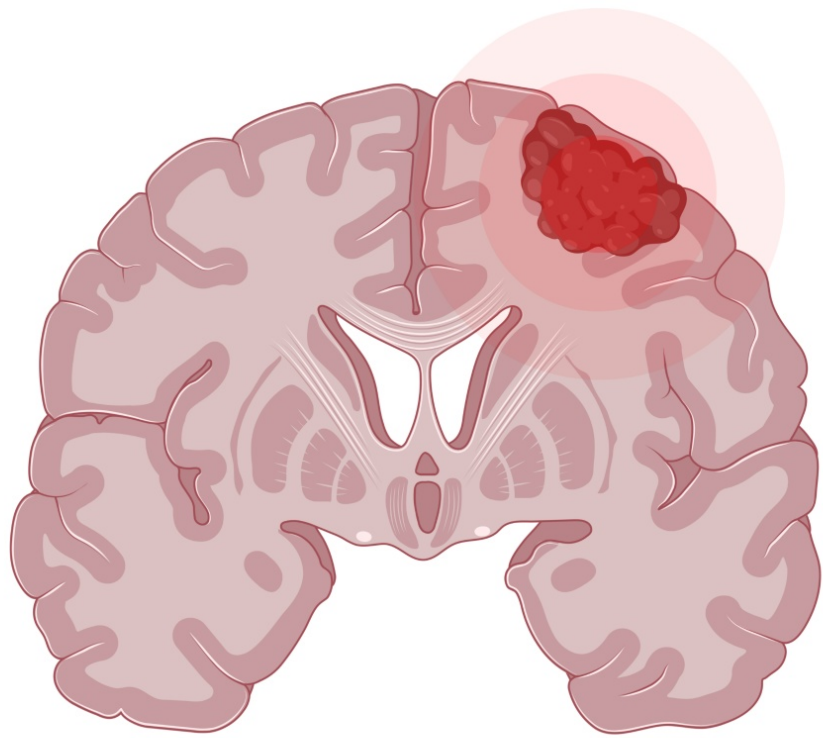


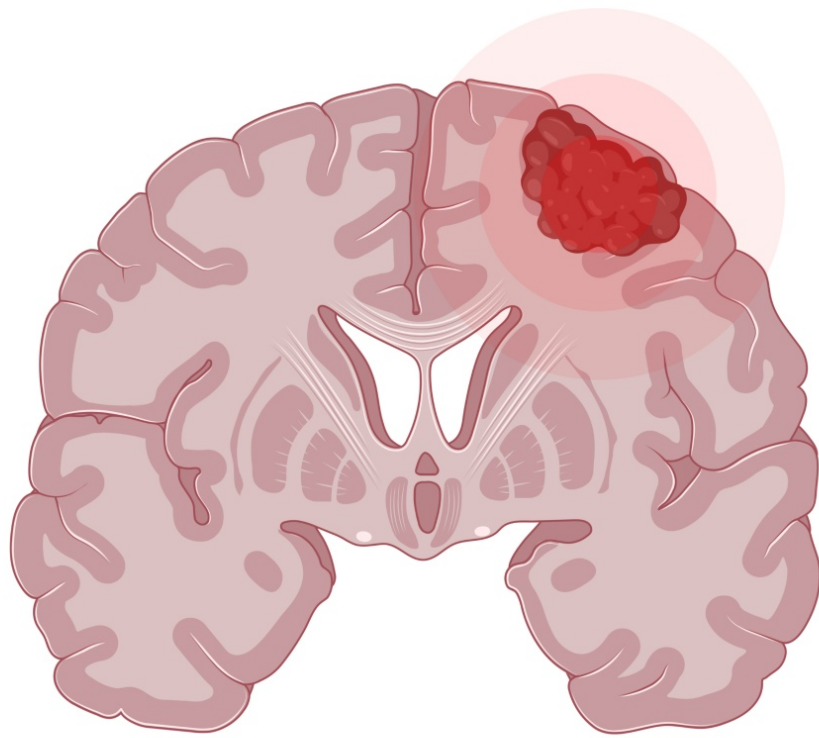
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Background







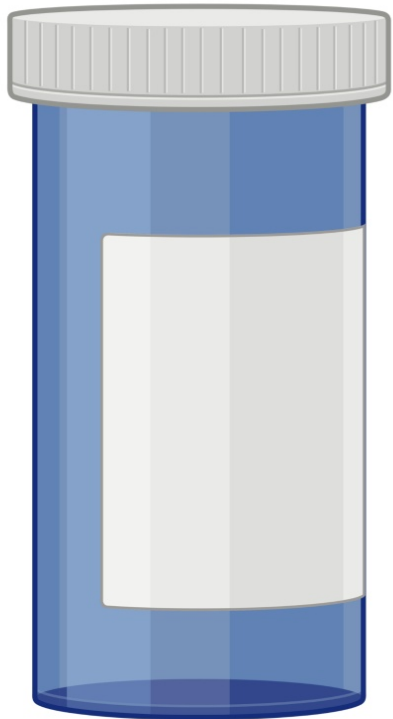
Brain Tumors:
Among the most
lethal cancers
with few
currently
available
treatment
options





Brain Tumors:
Second most common
cancer in children





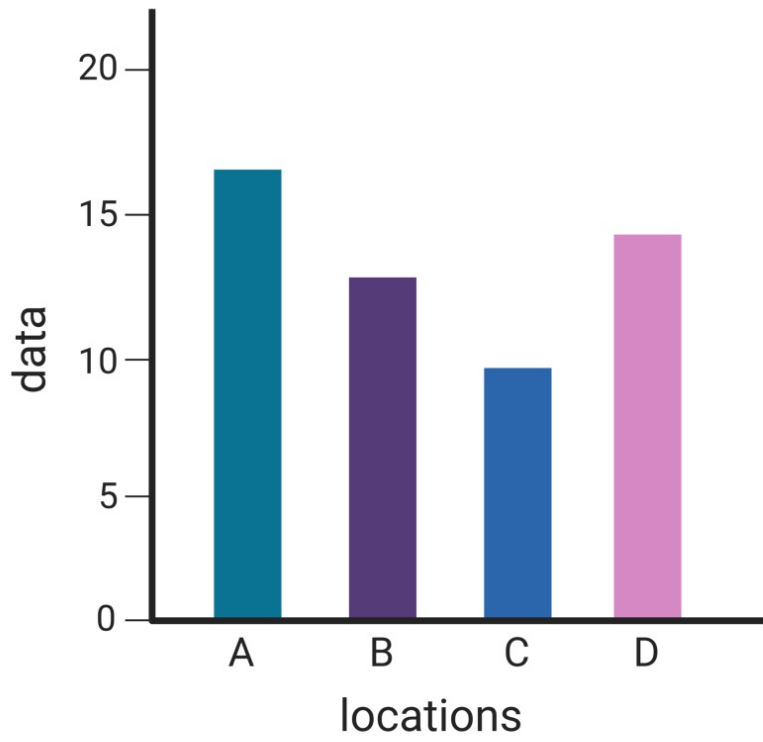
Molecular
genetic
analysis:
lead to
personalized
precision
medicine

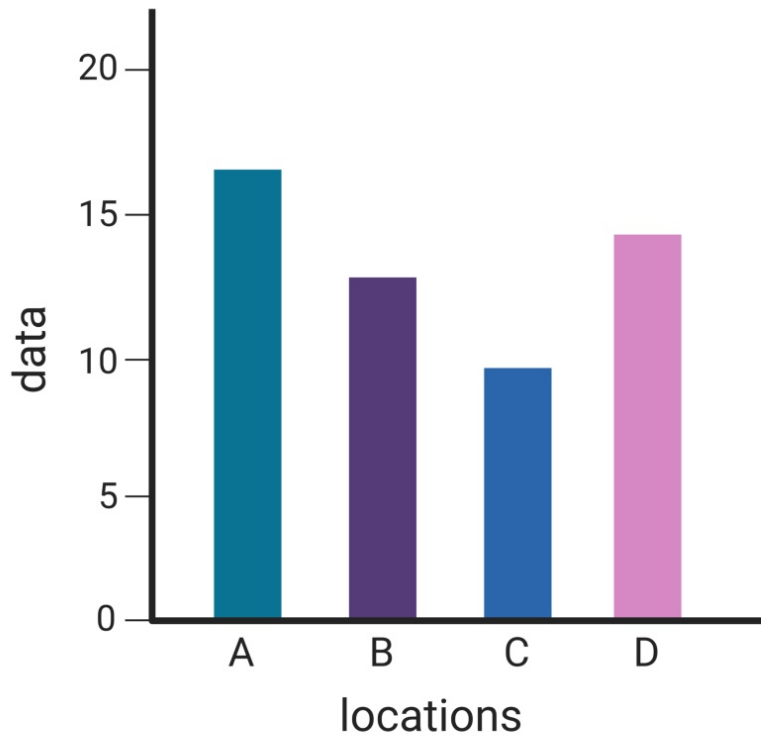




Molecular genetics*:
Laboratory steps are time
consuming and expensive

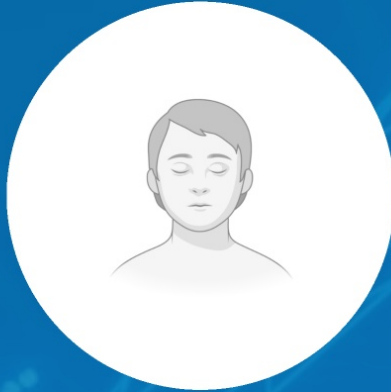
*Methylation arrays
and Next-Generation-
Sequencing





Statistical analyses of molecular genetics data requires large amounts of data, which are distributed among individual institutes

Background

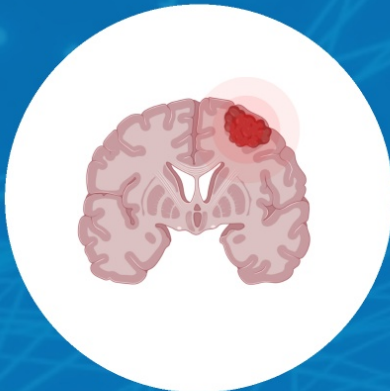


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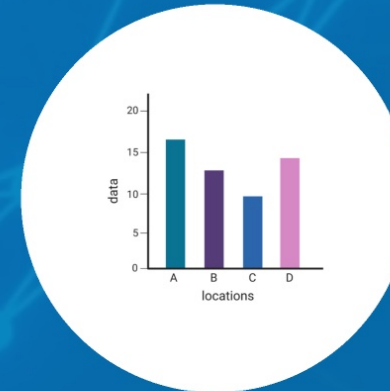
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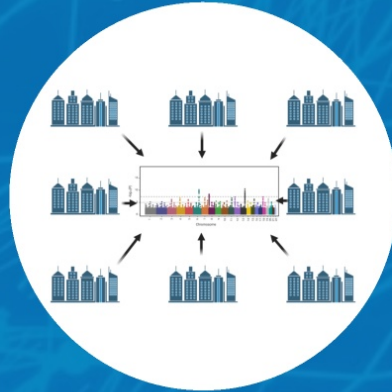
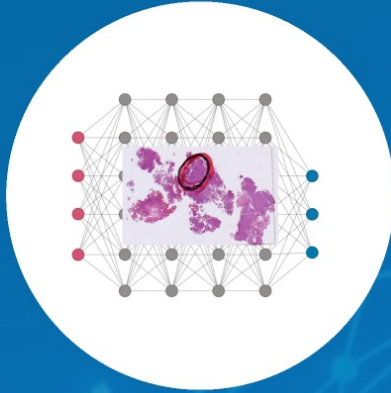


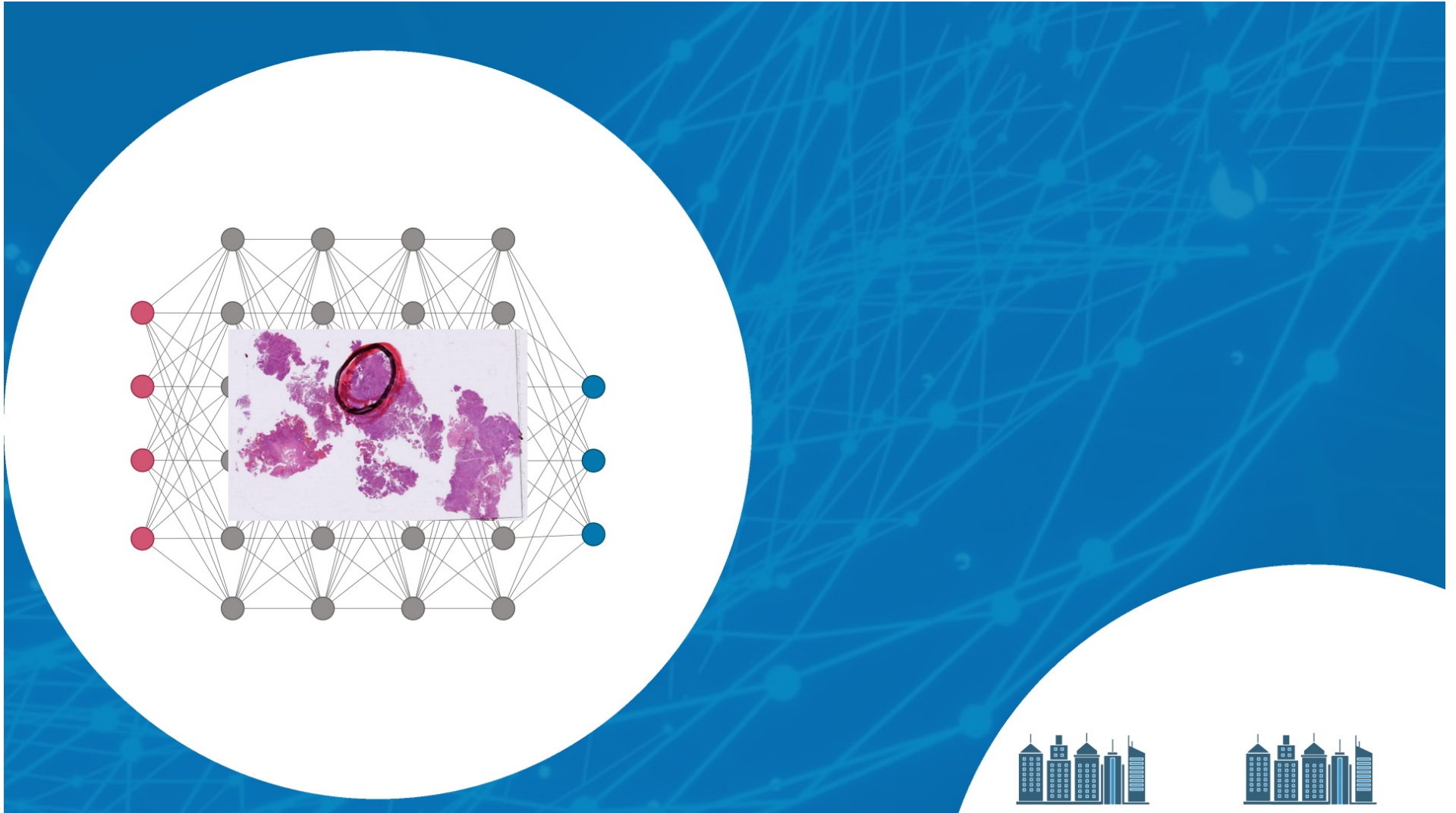
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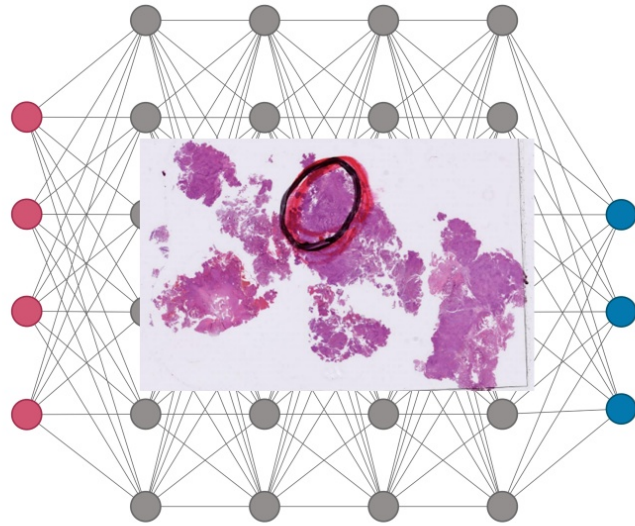
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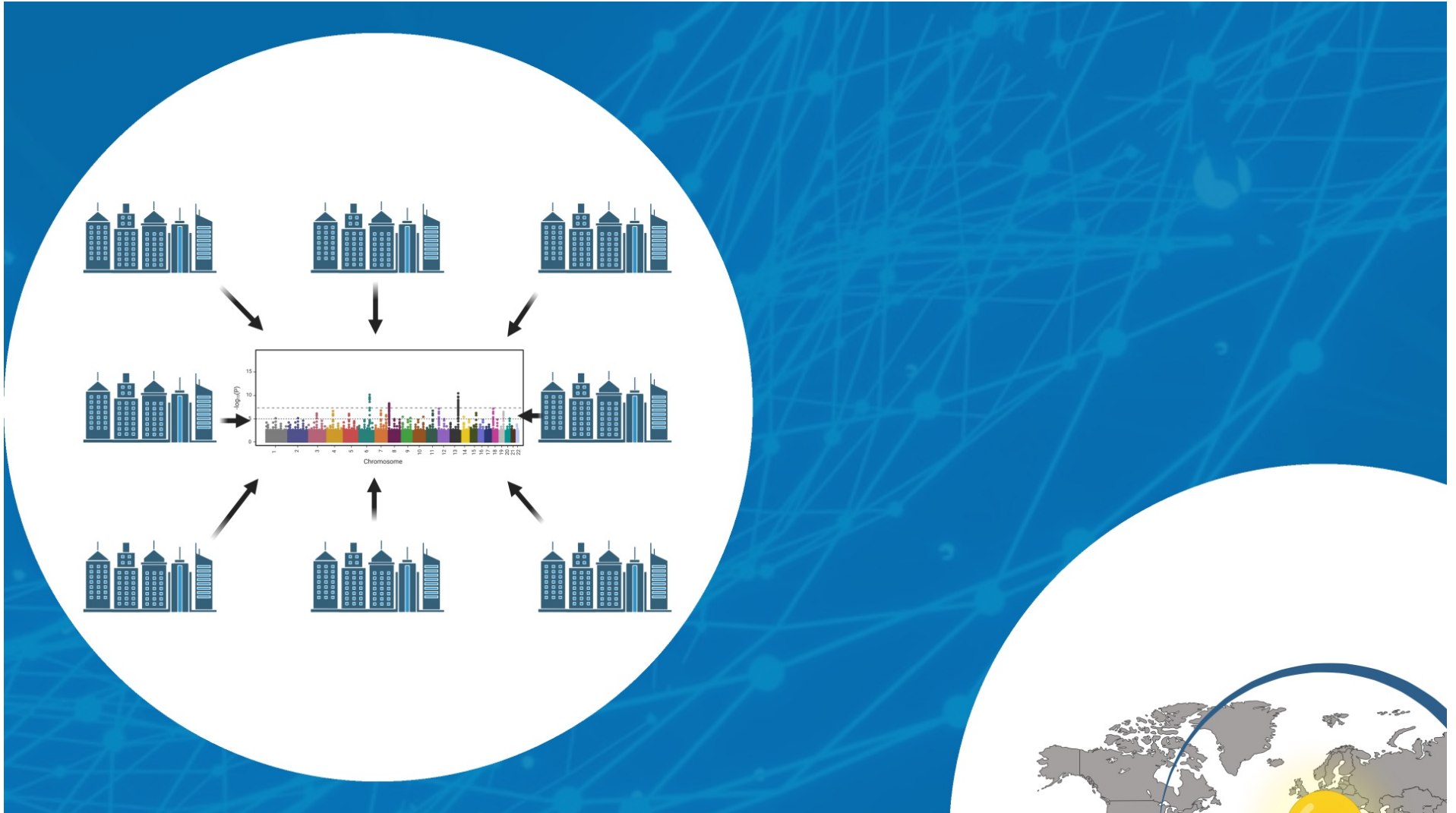
Aim



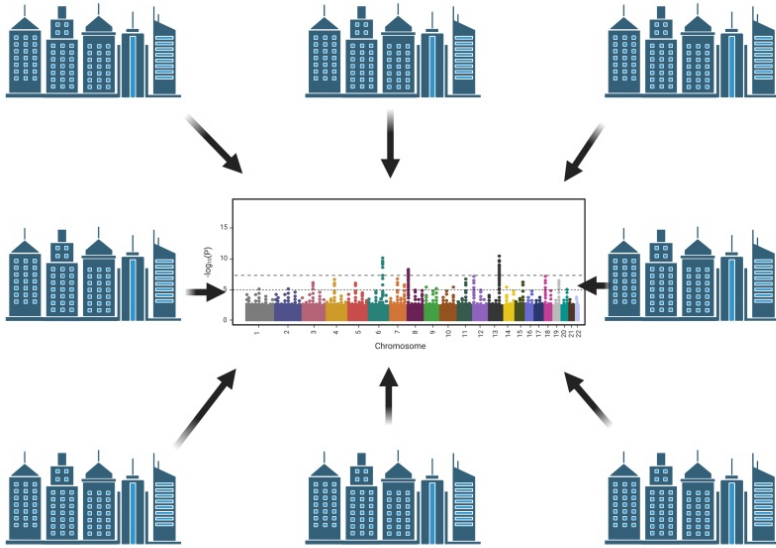


Use AI-algorithms on
Whole-Slide-Images:
Receive comparable
information as
laboratory

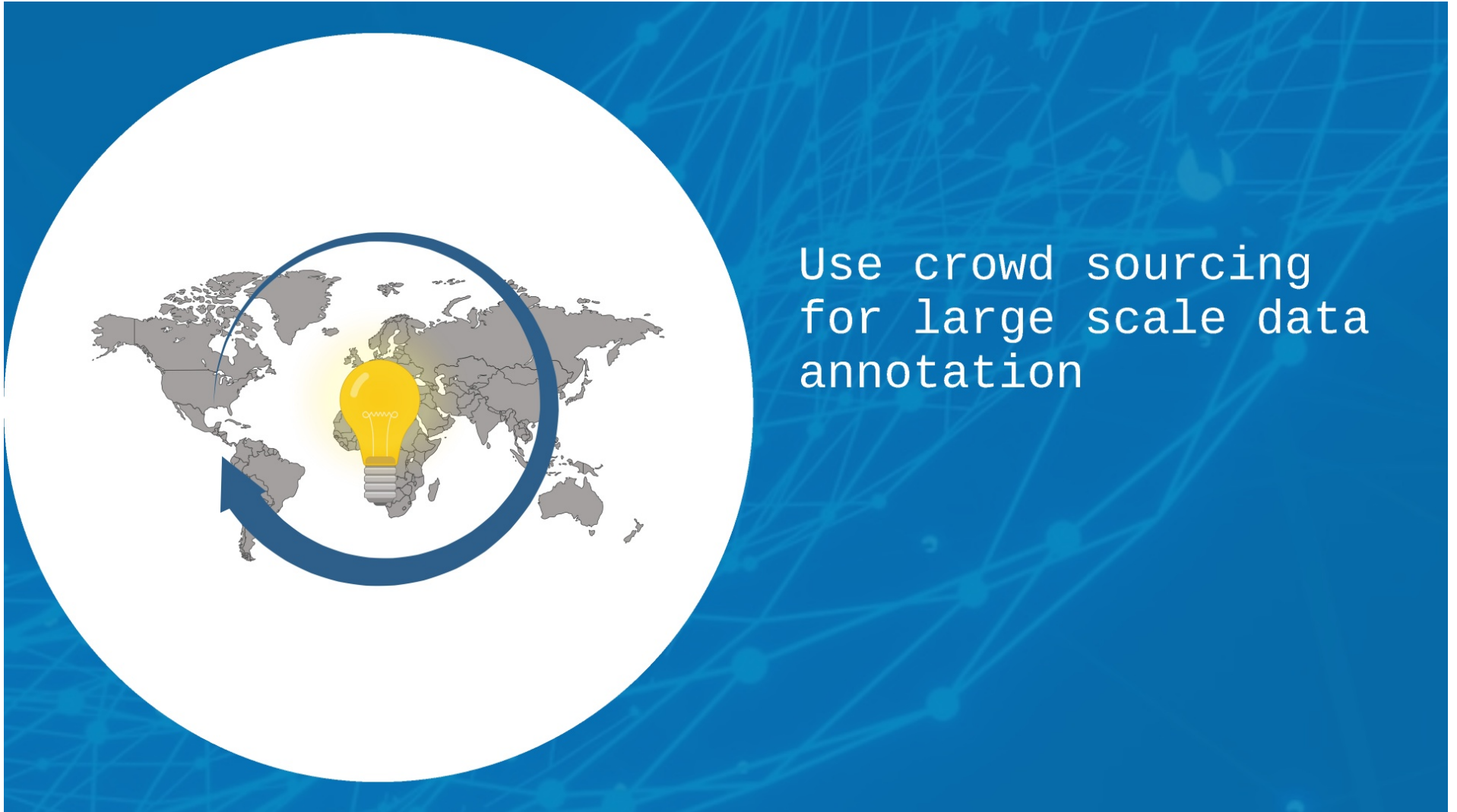




Use distributed computing and swarm learning for data protection compliant analysis

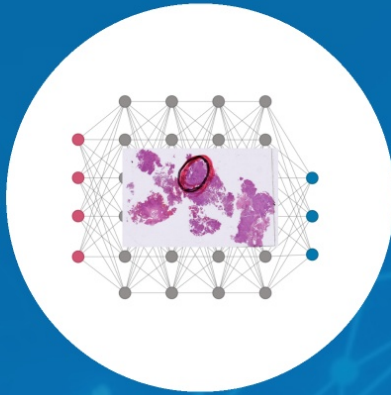




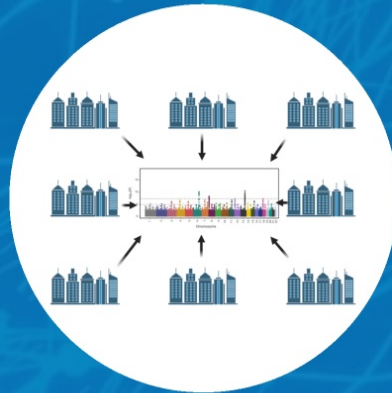


Use crowd sourcing
for large scale data
annotation

Aim



Use AI-algorithms on
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Receive comparable
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Use distributed
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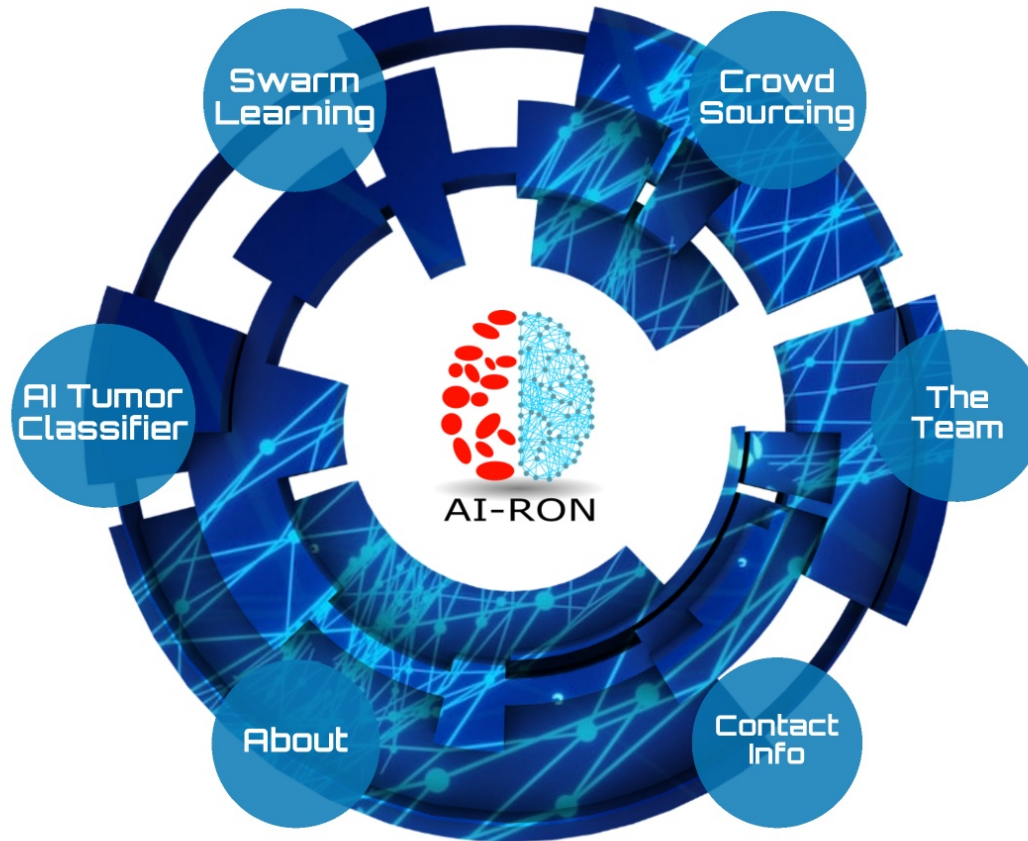


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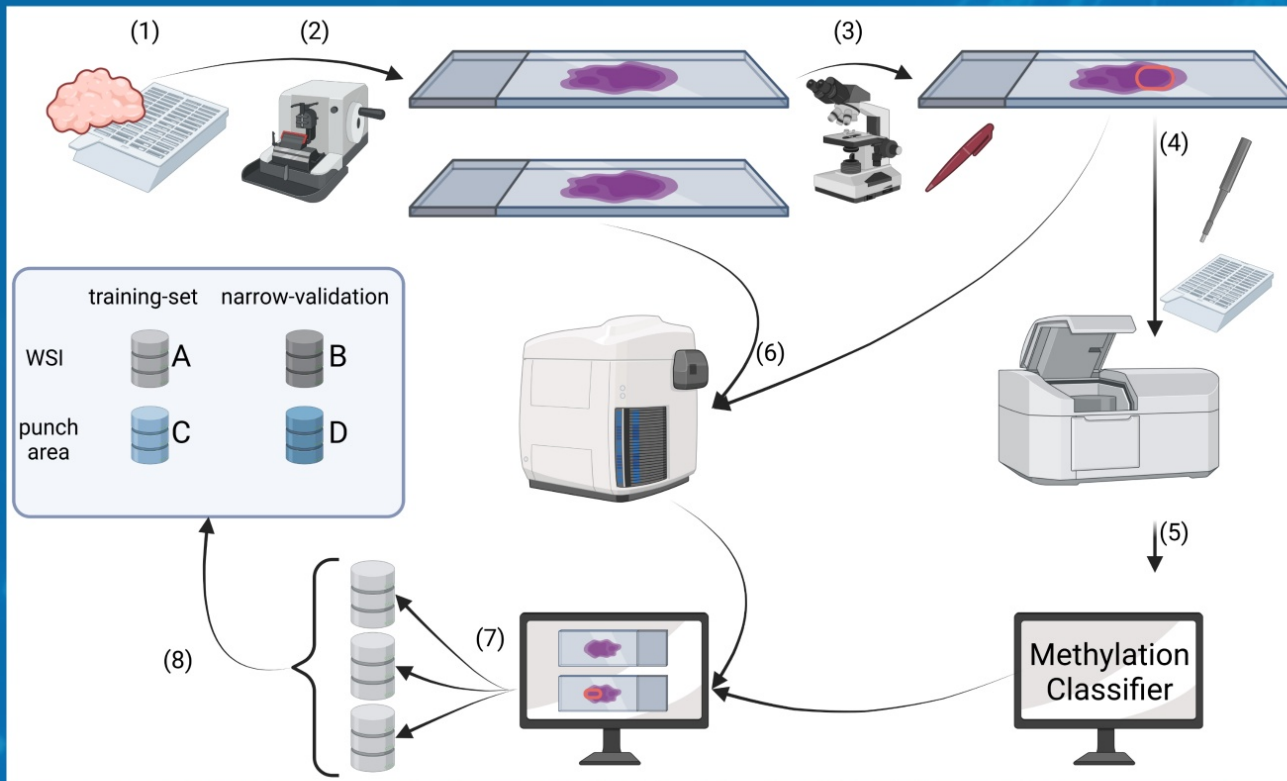
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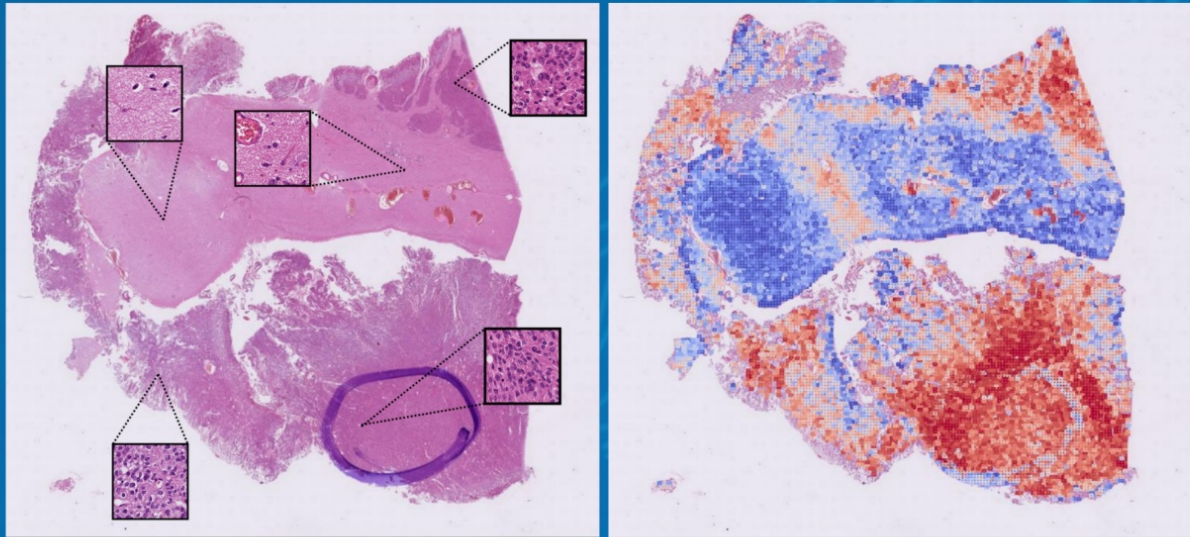


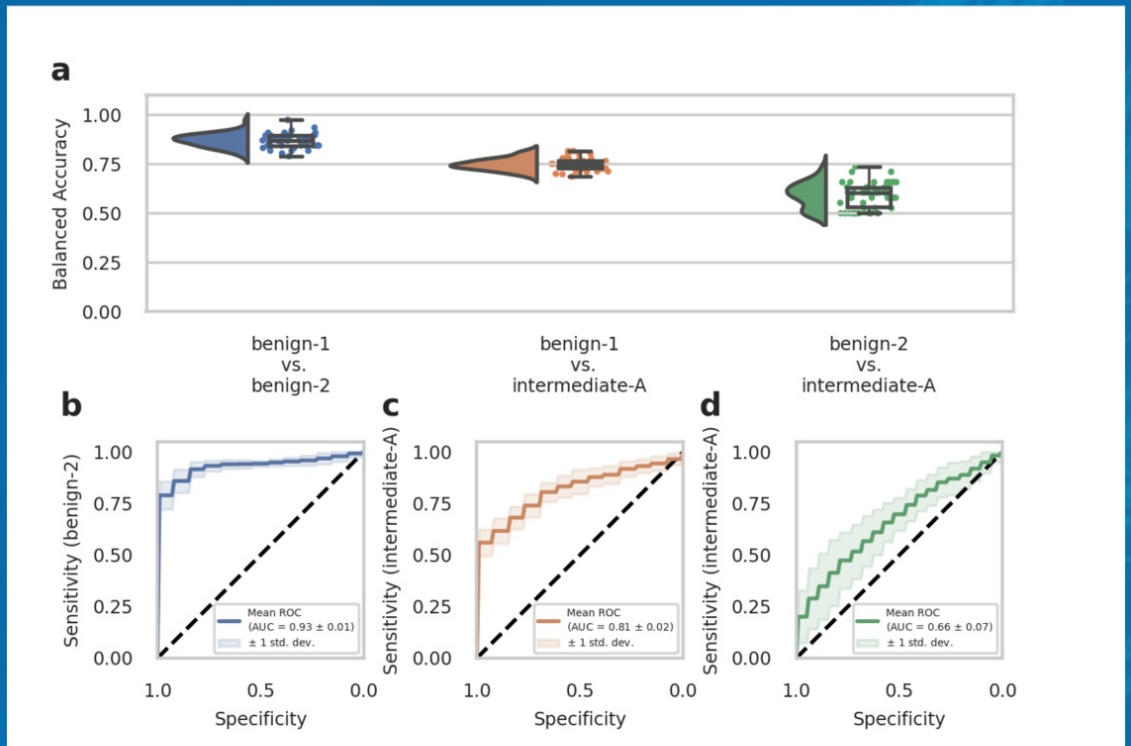
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AI Tumor Classification



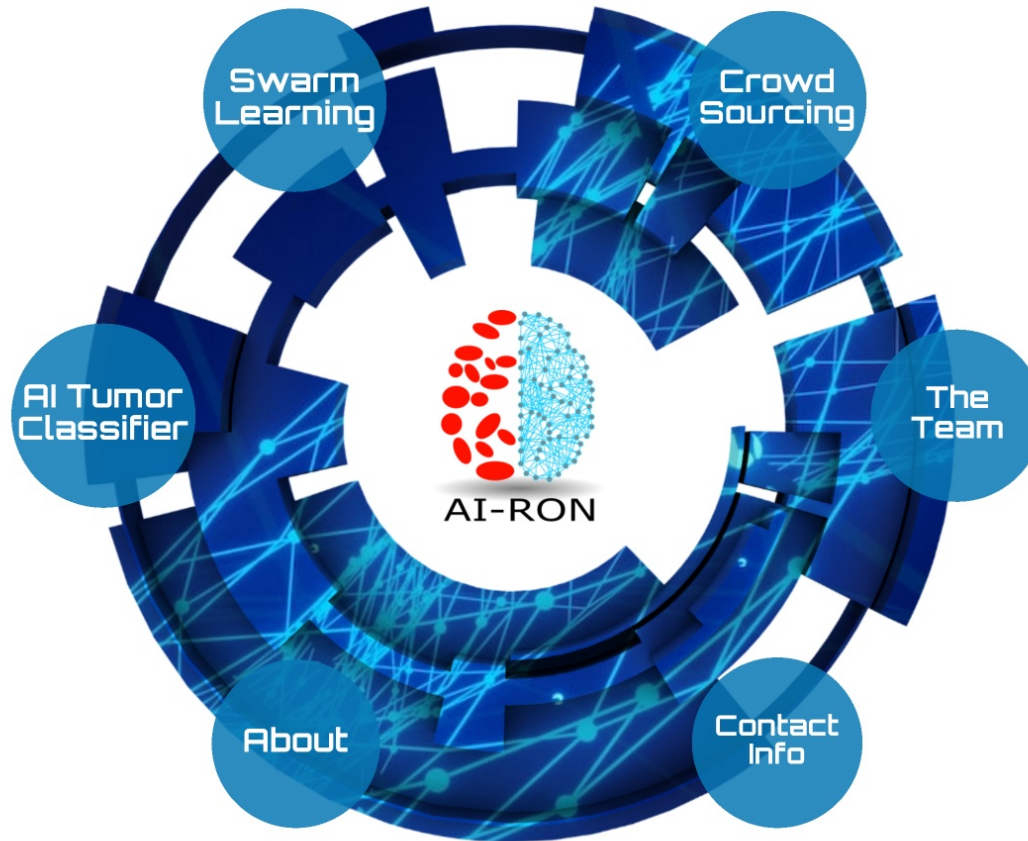




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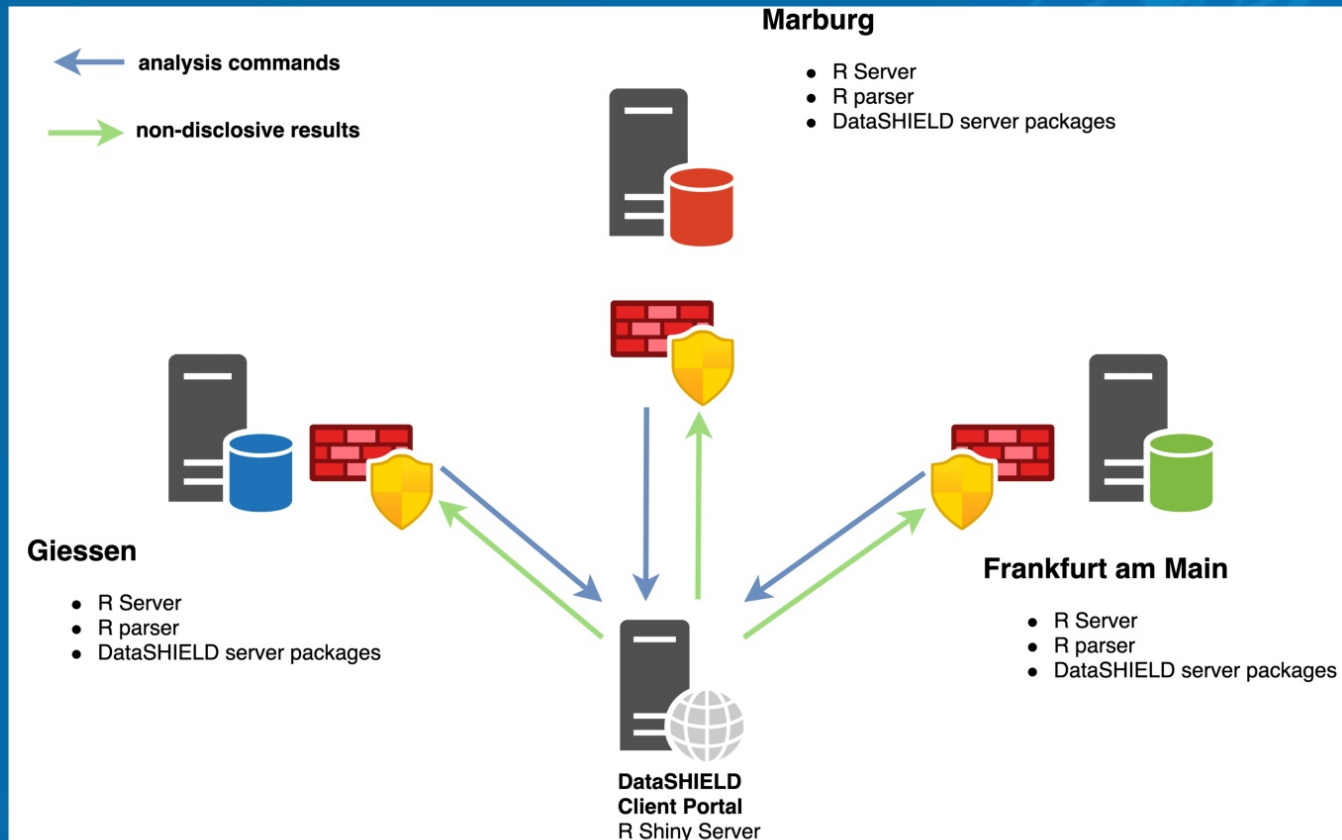
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distributed Computing





DataSHIELD
Client Portal
R Shiny Server

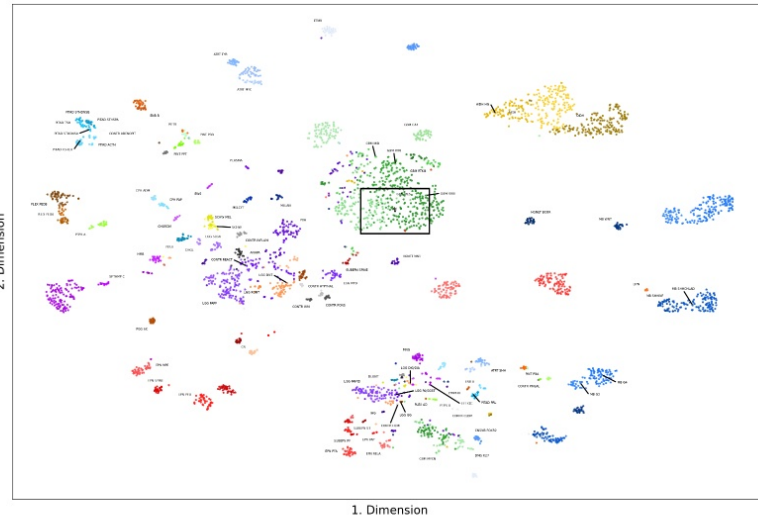
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Upload complete

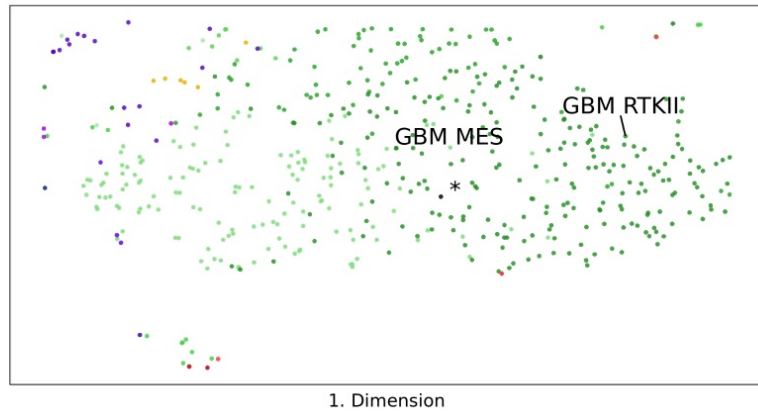
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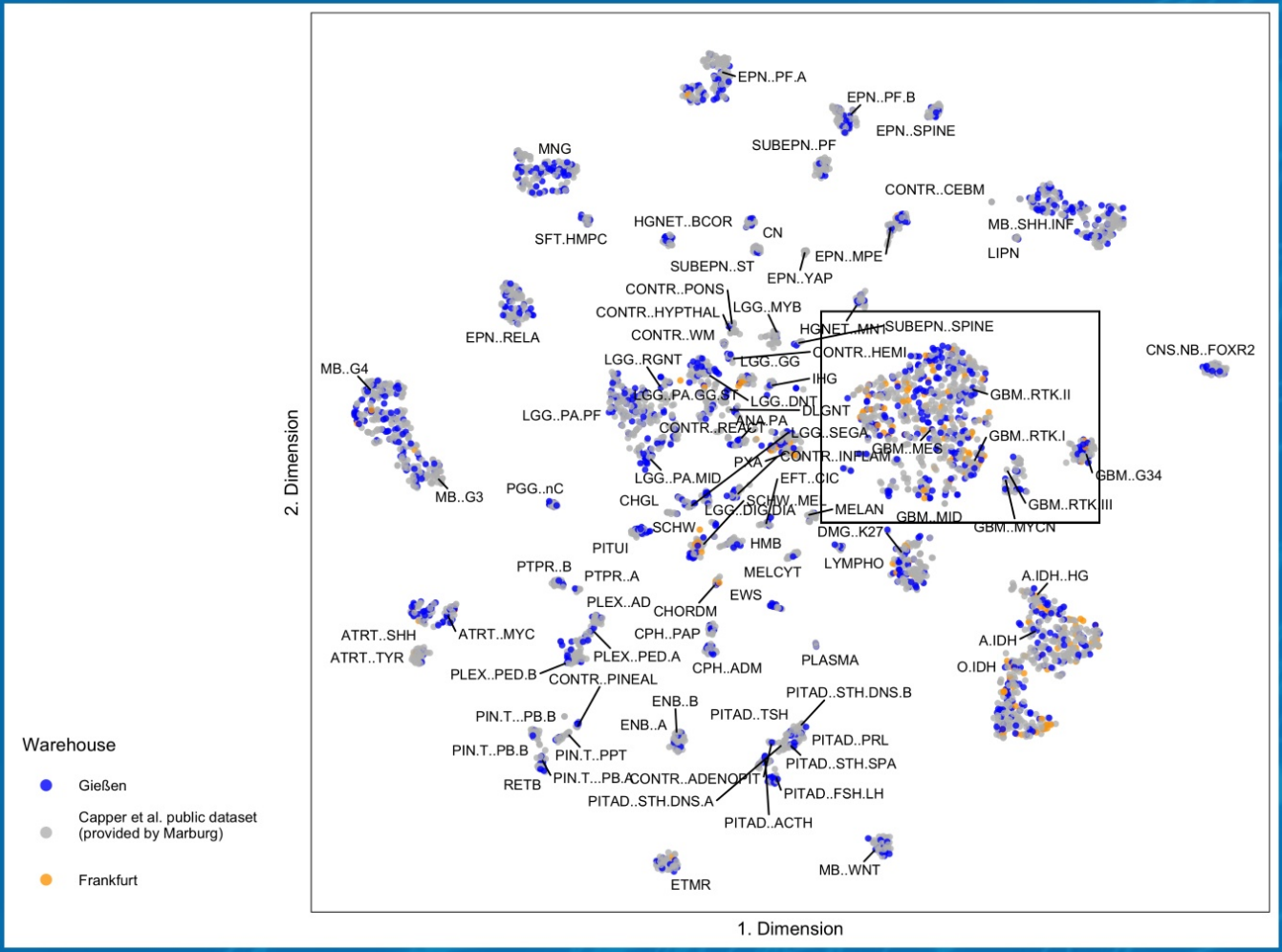
Download TSNE

- 1 ETMR 49
- 2 ATRT MYC 31
- 2 ATRT SHH 51
- 2 ATRT TYR 39
- 2 CNSNB FOXR2 43
- 2 MB G3 99
- 2 MB G4 181
- 2 MB SHHCHLAD 126
- 2 MB SHHNF 65
- 2 MB WNT 48
- 5 HONET BCOR 26
- 1 DMG K27 117
- 2 GBM G34 54
- 2 GBM MES 160
- 2 GBM MID 33
- 2 GBM MYOV 33
- 2 GBM RTKI 108
- 2 GBM RTKII 261
- 2 GBM RTKIII 22
- 1 CN 23
- 1 DLGNT 12
- 1 LGG DIG/DIA 8
- 1 LGG DNT 56
- 1 LGG RGNT 12
- 1 LUN 11
- 1 RETB 19
- 2 ENB A 24
- 2 ENB B 16
- 2 PGG PK 20
- 4 LGG GG 26
- 1 CPH ADM 25
- 1 CPH PAP 20
- 1 PITAD ACTH 19
- 1 PITAD FSHLH 23
- 1 PITAD PRL 8
- 1 PITAD TSH 11
- 2 PITAD STHDNSA 9
- 2 PITAD STHDNSB 13
- 2 PITAD STHDSPA 17
- 4 PITUI 30
- 1 EPN RELA 90
- 2 EPN MPE 45
- 2 EPN PFA 127
- 2 EPN PFB 59
- 2 EPN YAP 11
- 4 EPN SPINE 34
- 4 SUBEPN PF 40
- 4 SUBEPN SPINE 12
- 4 SUBEPN ST 20
- 1 CHGL 12
- 2 LGG SEGA 22
- 2 LGG PAMID 55
- 2 LGG PMP 154
- 4 LGG MYB 27
- 4 LGG PA/GGST 45
- 4 PAX 67
- 5 ANAPA 46
- 5 HONET MNL 26
- 5 IHG 15
- 1 SCHW 31
- 1 SCHW MEL 12
- 2 PINT PBB 23
- 2 PTPR A 9
- 2 PTPR B 23
- 3 PINT PPT 20
- 4 PINT PBA 9
- 1 CHORDM 11
- 1 EWS 17
- 1 HMB 27
- 3 SFTHMP C 18
- 4 MNG 149
- 3 EFT CIC 13
- 1 MELAN 18
- 1 MELCT 19
- 3 PLEX AD 23
- 3 PLEX PEDA 16
- 3 PLEX PEDB 49
- 3 AIDH 172
- 3 AIDH HG 87
- 3 ODH 163
- 1 LYMPHO 14
- 1 PLASMA 8
- 1 NA CONTR ADENOPIT 9
- 1 NA CONTR CEBM 8
- 1 NA CONTR HEMH 13
- 1 NA CONTR HYPHIAL 9
- 1 NA CONTR INFLAM 24
- 1 NA CONTR PINEAL 12
- 1 NA CONTR PONS 12
- 1 NA CONTR REACT 23
- 1 NA CONTR WM 9
- 1 Patient



Log out

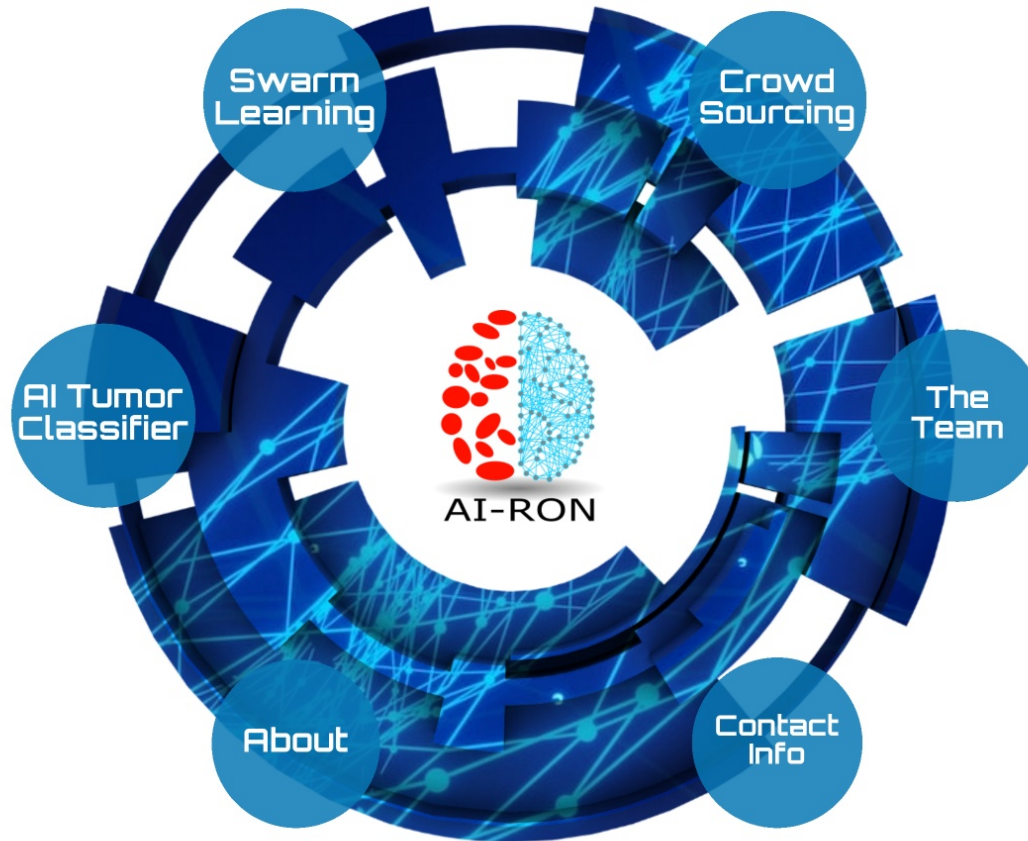




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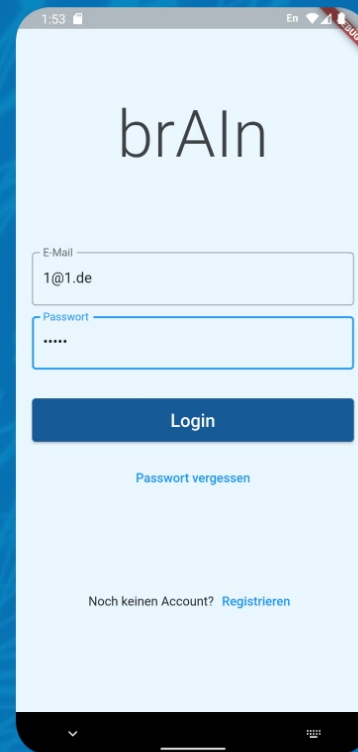
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brAln App



brAln App



Crowd-Annotation

1:53 En

brAln

E-Mail
1@1.de

Passwort
.....

Login

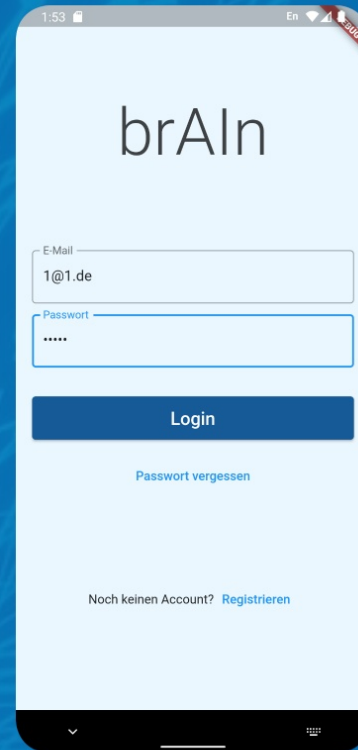
[Passwort vergessen](#)

Noch keinen Account? [Registrieren](#)

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Crowd-Annotation



Improved Teaching

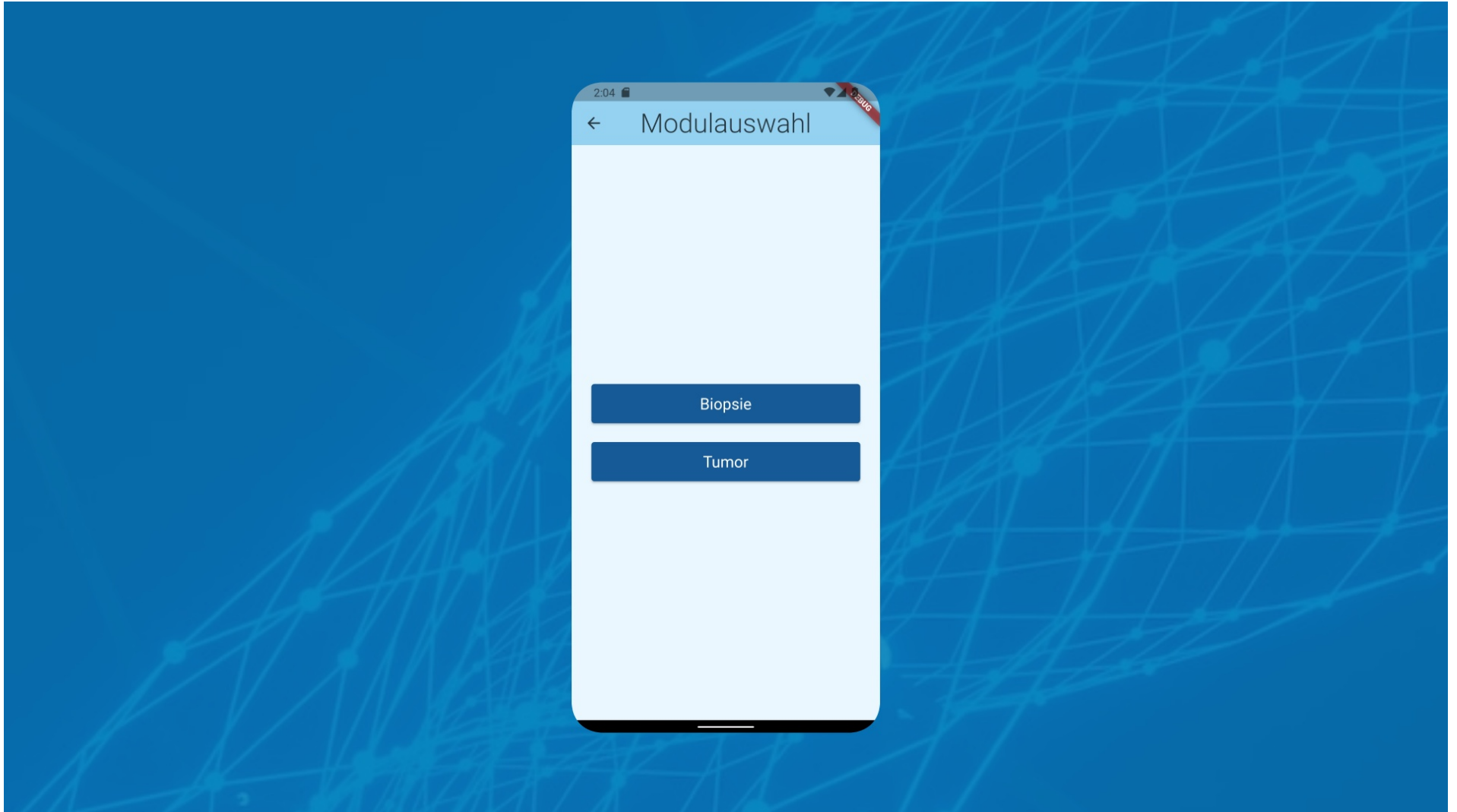
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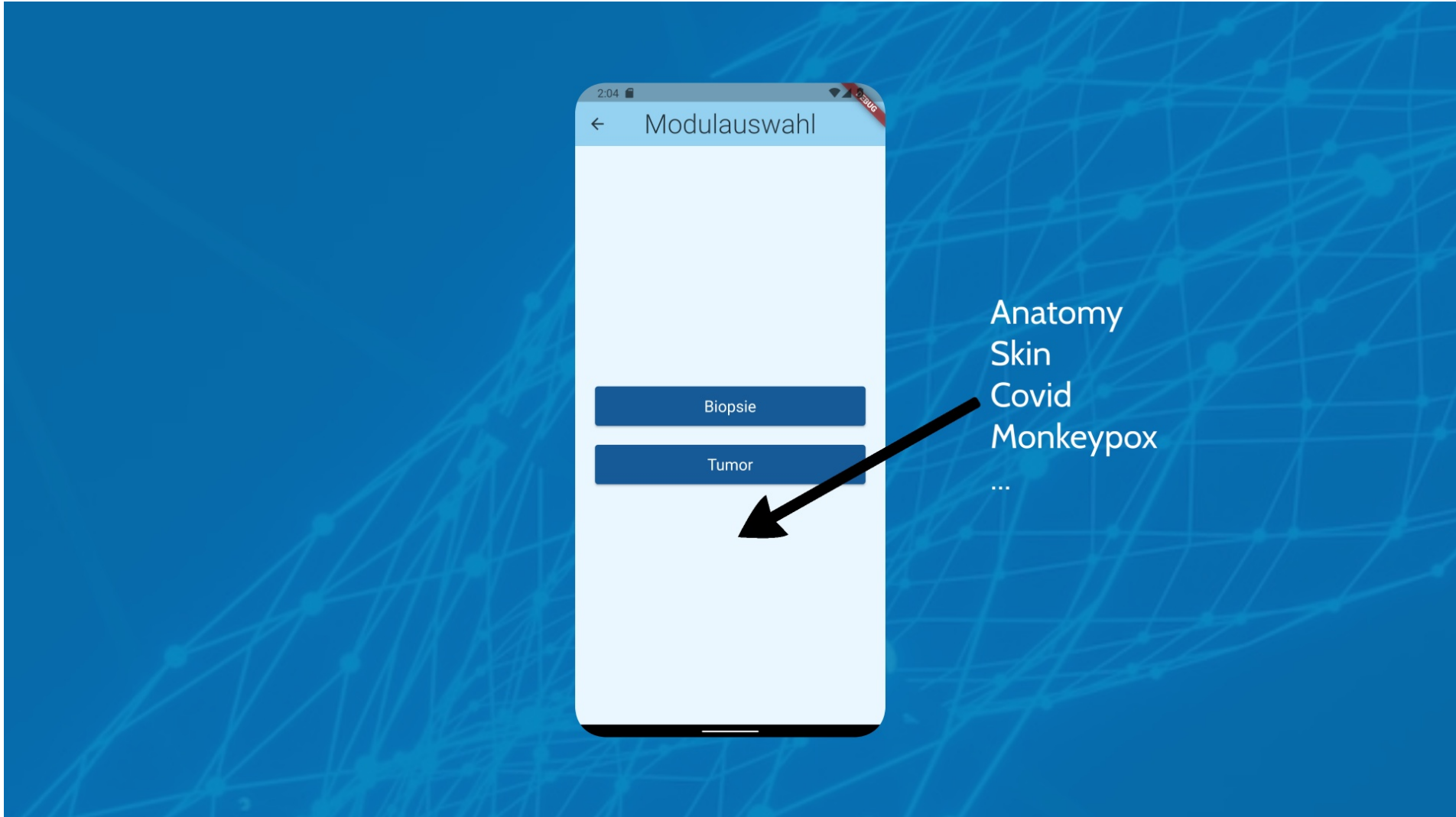
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Passwort

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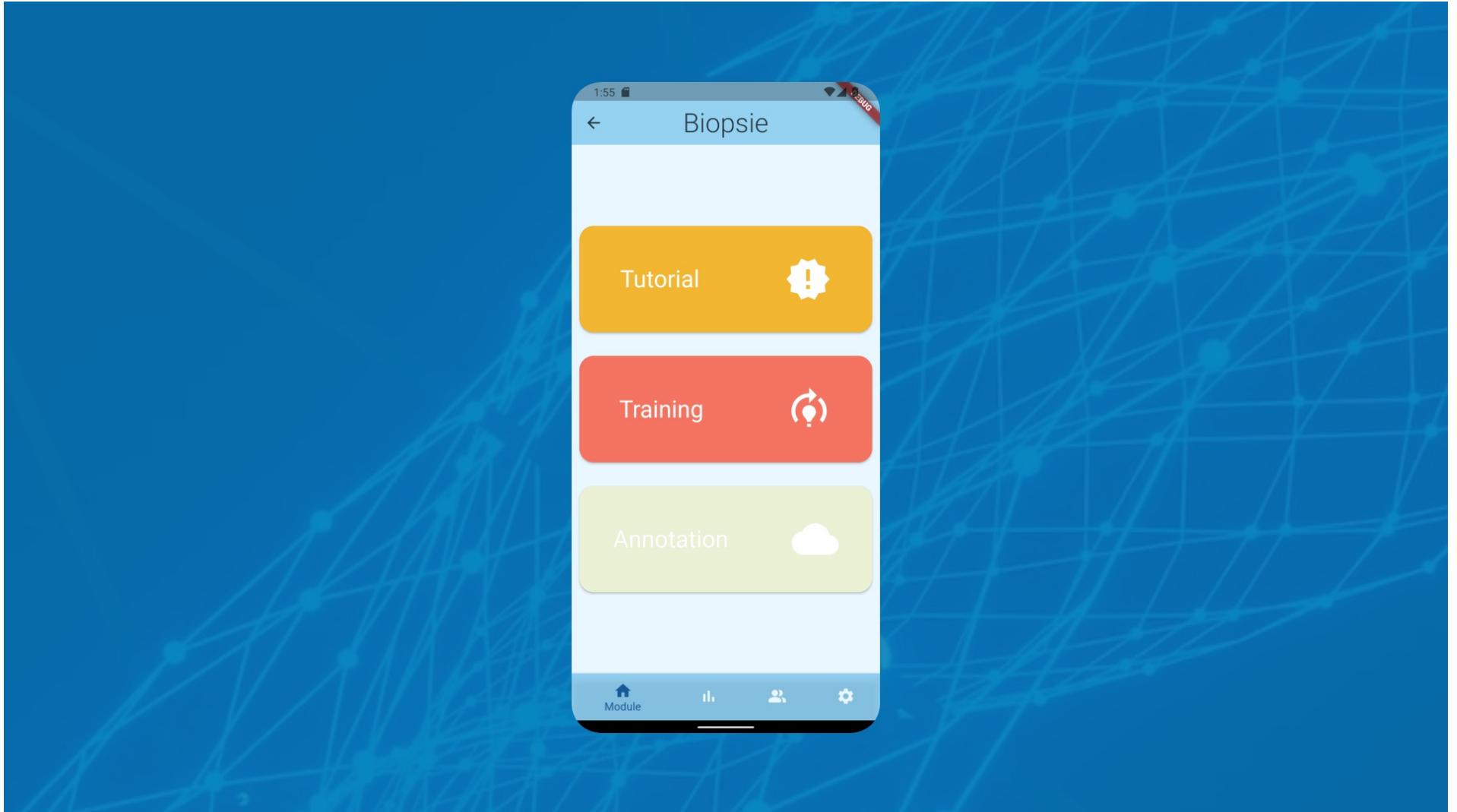
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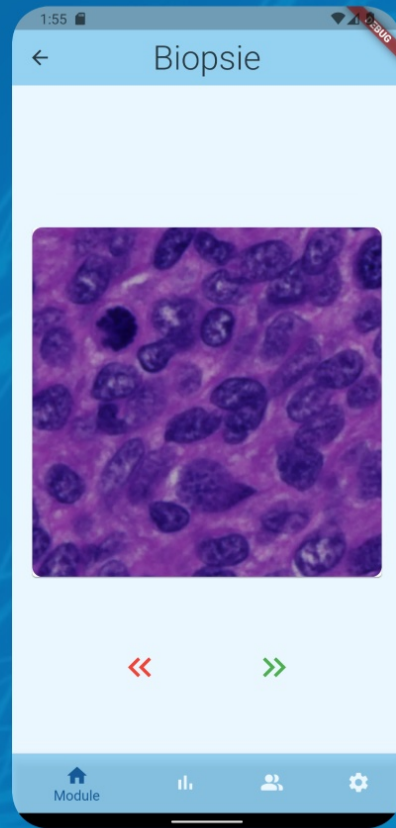
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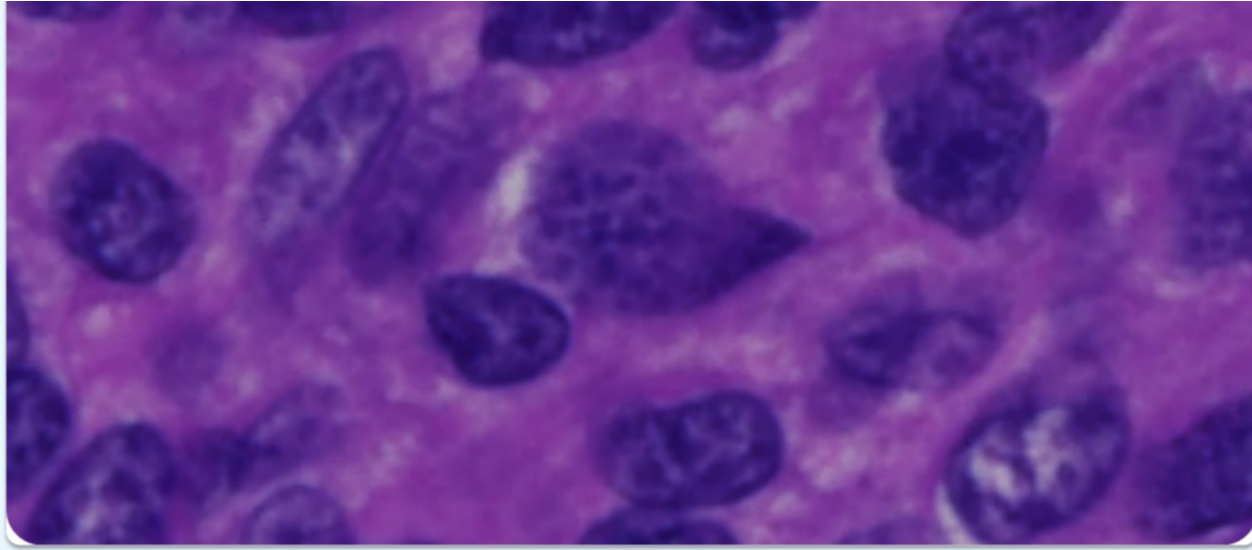
Tumor

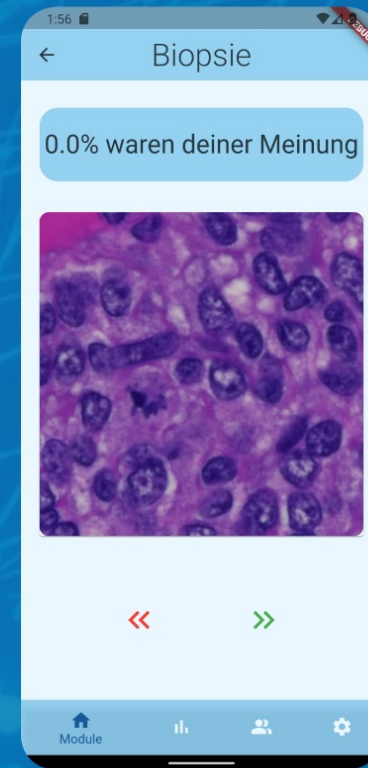
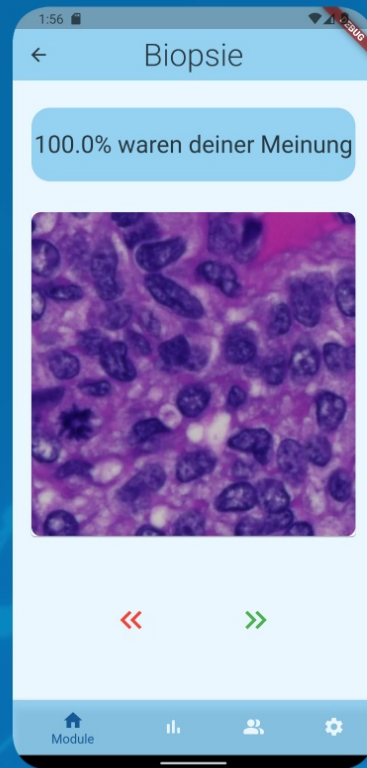


Annotation









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The Team



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PhD Student



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PhD Student



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B.Sc. Student



René Petermann
B.Sc. Student



Felix Dörmer
B.Sc. Student

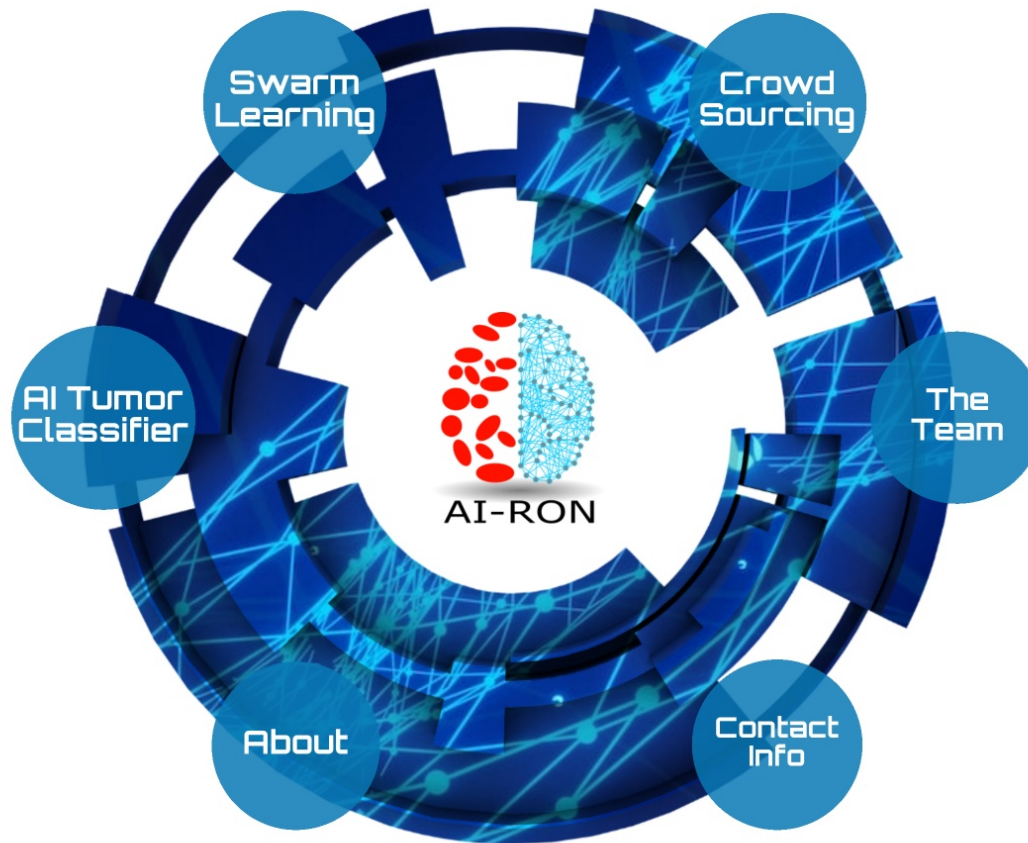


Moritz Dudde
B.Sc. Student

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