

Investigation of the use of ML4microbiome in industry

preliminary results



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Industries in the microbiome business

Given examples

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Simple search

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Website: <https://www.biotech-careers.org/company-core-activity/microbiome>

→ **242 companies (368 locations)**

Preliminary investigation of “microbiome companies” for MLuse

Search on company-websites

Keywords: AI, machine learning, data science,
deep learning, bioinformatics

→ 60 entries in “database”

Name	Product / Offer / Research	Website	Contact	Their Approach
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Biome Diagnostics	- Biome Diagnostics offer a stool based prediction test for immunotherapy response (for healthcare professionals)	https://www.biome-dx.com/	Meldemannstraße 18, 1200 Vienna Contact ticket on website	- The combined knowledge database (from universities and hospitals) of bacteria-bacteria associations and thousands of microbiome profile - advanced bioinformatics, statistics and ML enable to learn how the intestinal microbiome affects the patients health and influences diseases - together with cutting edge metagenomic sequencing technologies they are able to identify thousands of bacterial Organisms and predict their activities and roles in immune related functions within the body
Microba	- Microba offers therapeutics, diagnosis and research services (data and methods)	https://microba.com/	Australia Tel.: 1300-974-621 USA Tel.: 1-888-5288-550 OR contact ticket	- They identify species, genes and pathways that are critical to research - applying advanced data science and AI techniques to rich metagenomic data, that can reveal novel biomarkers - harnessed for innovative products, therapies and diagnostics - provide exploratory and statistical data analysis - as well as assistance with interpretation of results
Cera Screen	- offer all sorts of test kits for health check (DNA age test, testosterone levels etc.) - offer courses and choachings	https://www.cerascreen.at/	Tel: +49 (0) 385 393 632 22	- order test kit and send required sample back - lab analysis of given sample - results will be send back and discussed for later therapeutics (using AI in research field)
SeqBiome	- provides high quality and interactive sequencing and microbiome analysis for academia and industry	https://seqbiome.com/	+353-87-7592733 OR contact ticket OR info@seqbiome.com	- workflow to meet customers research needs - all bioinformatics pipelines are developed for the cloud, allowing to scale Workload to the client`s needs - apply state of the art methodologies (e.g. ML classification and prediction)
VIOME	- focusing on products and supplements - focuses on predicting illnesses, early diagnostics providing health outlooks and offering precision therapeutics which refers to individualized nutrition for health and conditions	https://www.viome.com/	1-855-958-4663 OR for press related Inquiries: press@viome.com	- uses AI to analyze microbes and mRNA from samples and uses a gene expression database to identify chronic diseases and other health concerns, such as cancer and aging

Questionnaire to the companies

1. What are the tasks you are using microbiome analysis for?
(medical, environmental, food)
2. Does your company use Machine Learning tools? If YES which?
3. What type of data do you use as an input?
4. Which methods do you use for data preprocessing
depending on the input data?
5. Which ML-methods do you use?
6. Has your company developed an own Machine Learning pipeline/workflow?
7. Which specific challenges did you face, when implementing your ML Pipeline ?
8. Is your ML Pipeline publicly available ? Do you offer it as a product?

MORE ?

Next Steps

Setup an accompanying letter/information
Design questionnaire as a Google-form
Send out inquiries to identified companies
Collect answers
Qualitative and quantitative analysis
Summary / publication

Thank you for your attention
Questions and suggestions