Applications of AI in healthcare (Highlight B)

FCAI Highlight Program B creates AI tools to tackle real-world problems in healthcare together with expert collaborators from the respective fields.

Program objectives

Application B1: AI for genetics (Contact: Samuli Ripatti, UH)
We will create AI to analyze multivariate but structured genotype and phenotype data. The FinnGen project combines genetic data and electronic health records for 500,000 Finns. In collaboration with FinnGen we apply the AI tools to find genes modifying disease risk, progression, and comorbidities. [1,2]

Application B2: Computational vaccines (Contact: Jukka Corander, UH)
We will develop an AI-driven R&D tool for digital engineering of bacterial vaccines, using population genomic surveillance data combined with experiments to make probabilistic predictions of campaign effects for candidate vaccines and to identify optimal formulations. The tool will significantly accelerate development of new vaccines and has large implications for global health. [3]

Application B3: Healthcare resource allocation (Contact: Pekka Marttinen, Aalto)
We will create AI for prediction of healthcare services and train it on nation-wide healthcare register data, in collaboration with the National Institute for Health and Welfare (THL). The platform can predict healthcare costs of individuals and will be used to allocate resources to healthcare providers in a fair and efficient way. It will also be used to assess and compare treatment practices across the country to identify the most effective ones. [4]

Selected results

A) 

B) Table 2. The r² score for year 2015 (%) of training complex.

<table>
<thead>
<tr>
<th>Training Year</th>
<th>r² for 2015</th>
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<tbody>
<tr>
<td>2015</td>
<td>0.3075</td>
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<td>N = 100, N = 500, N = 5000, N = 50,000</td>
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C) 

References


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