AI in medical and sustainability research

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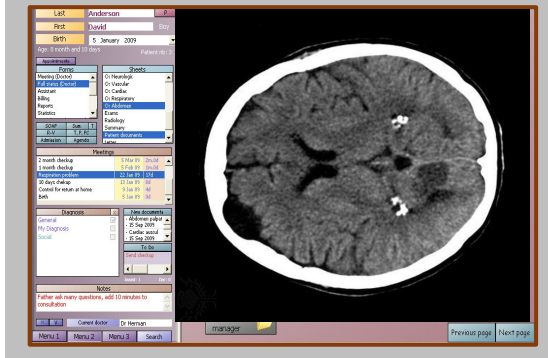
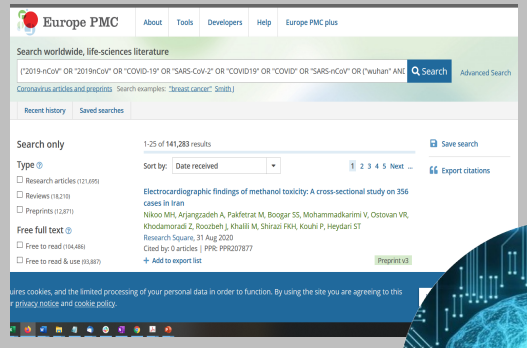
Our methods

Patient journals



Scientific literature and other texts



Bioinformatics databases

Large unstructured research datasets

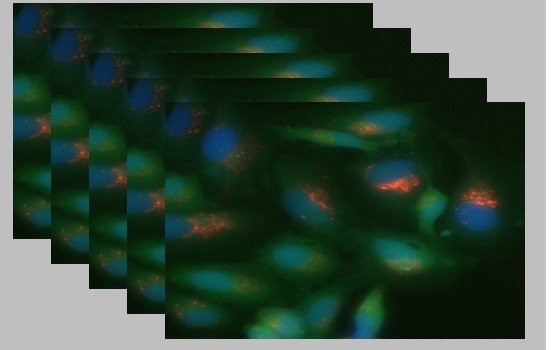
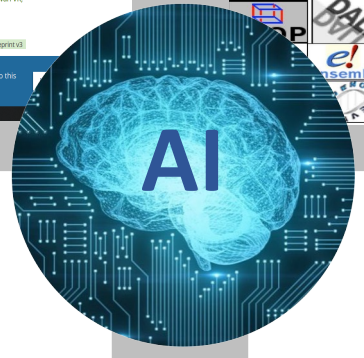
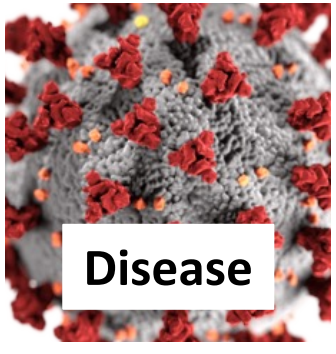
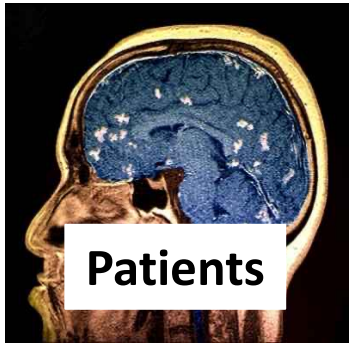


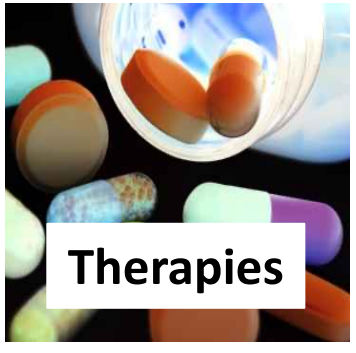
Image analysis



Text mining

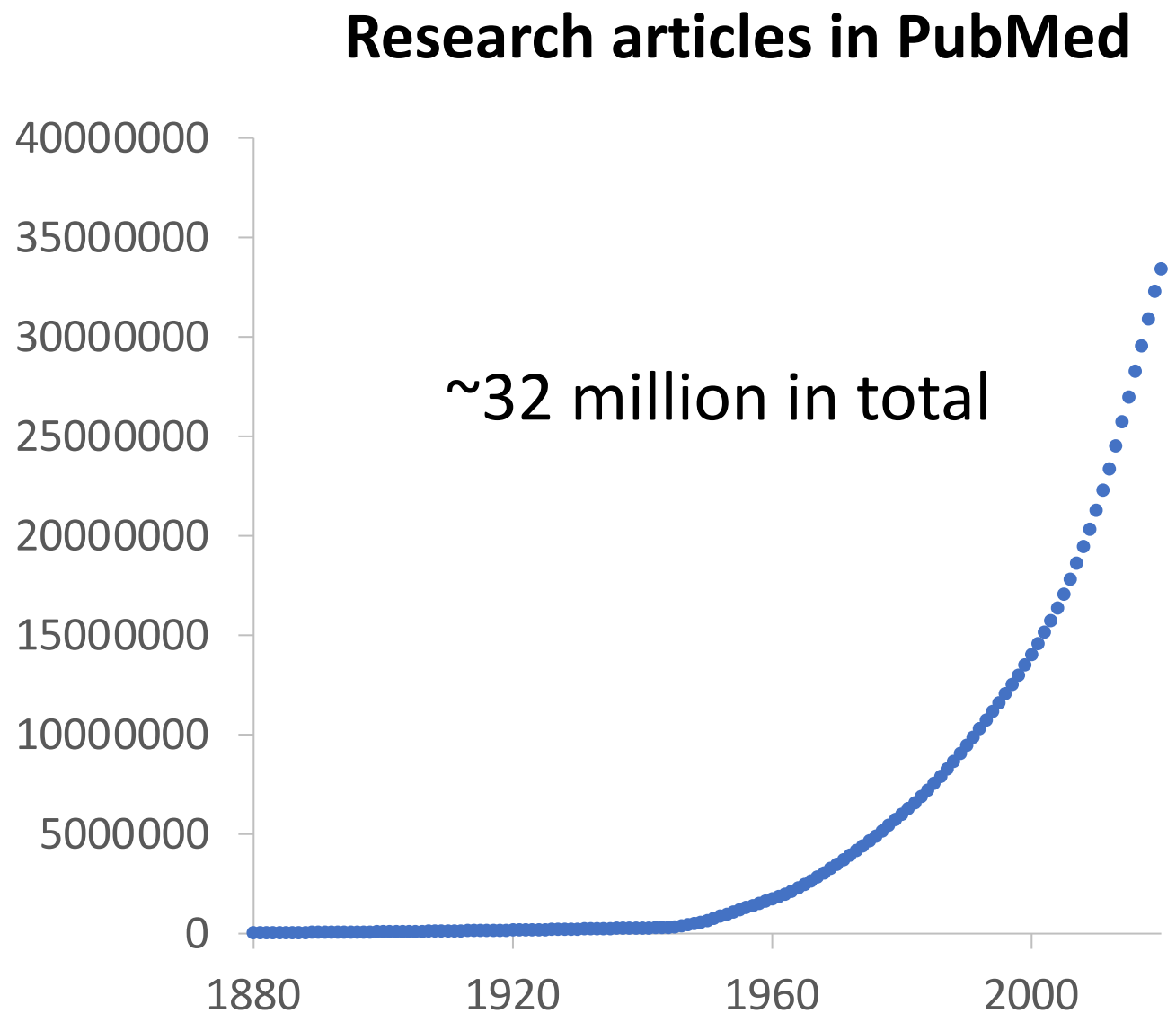




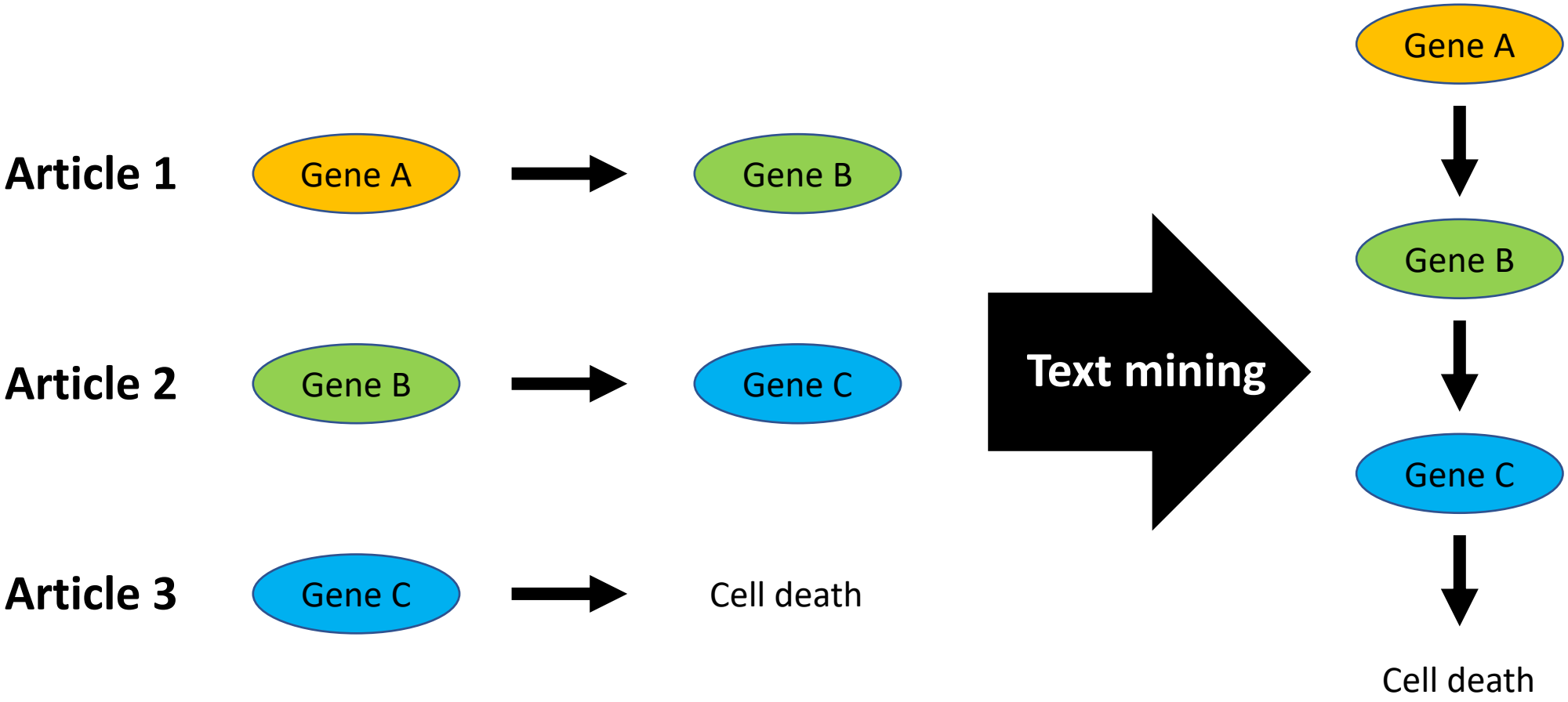


Project 1: Understanding cell signalling pathways with natural language processing

Humans can no longer process the accumulated medical knowledge



Text mining finds and combines knowledge fragments in medical literature



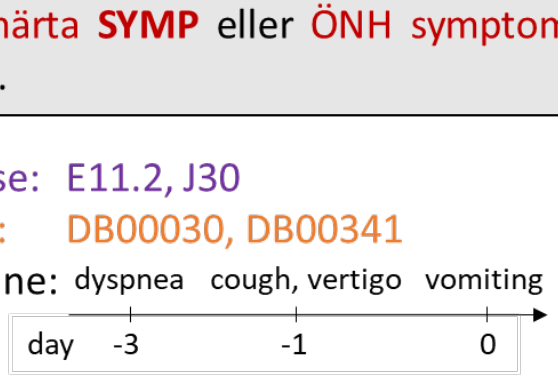
Project 2: Monitoring COVID-19 patient symptoms with natural language processing

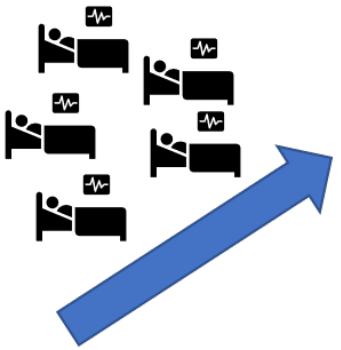
Information extraction from Swedish patient journals

Tidigare sjukdommar: DM2 insulinbehandlad. Hösnuva (tar cetrizin ibland).
Aktuellt: Insjuktnat för tre dagar sedan med andnöd vid gång. Tillkomst av hosta under gårdagen. Kräkt en gang idag. Ej noterat feber. Ingen buksmärta eller ÖNH symptom.

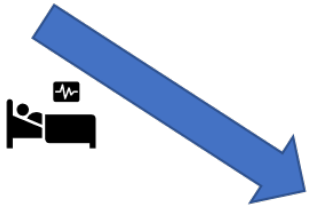
Tidigare sjukdommar: DM2 **DIS** insulinbehandlad **DRUG**. Hösnuva **DIS** (tar cetrizin **DRUG** ibland).
Aktuellt: Insjuktnat för tre dagar sedan **TIME** med andnöd **SYMP** vid gång. Tillkomst av hosta **SYMP** och yrsel **SYMP** under gårdagen **TIME**. Kräkt **SYMP** en gang idag **TIME**. Ej **NEG** noterat feber **SYMP**. Ingen **NEG** buksmärta **SYMP** eller ÖNH symptom **SYMP**.

Disease: E11.2, J30
Drugs: DB00030, DB00341
Timeline: dyspnea cough, vertigo vomiting





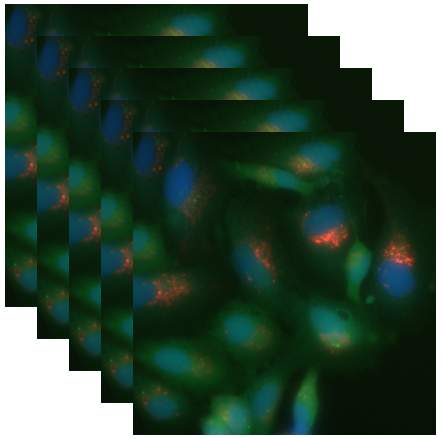
Epidemiology/ clinical research



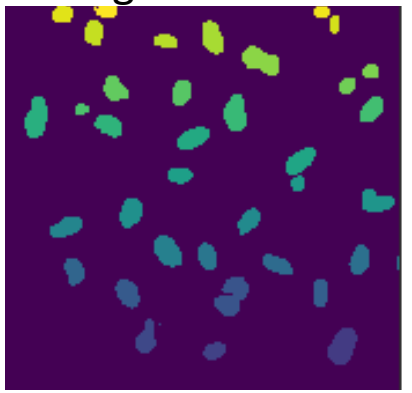
Personalized treatment decision

Project 3: Building AI models to analyse genome-wide microscopy screens

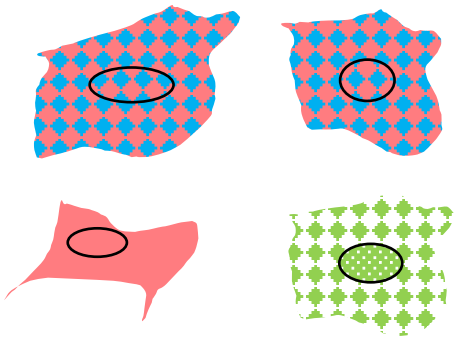
Image analysis for high-throughput microscopy screening



Segmentation

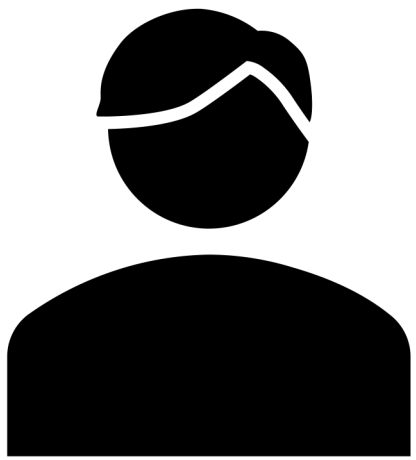


Classification/Scoring/
Clustering

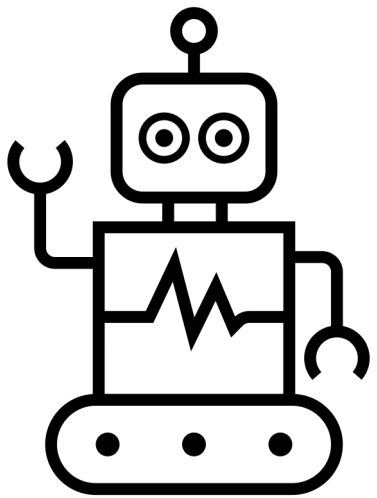


Project 4: Build a chat bot that nudges people towards sustainable solutions

Did you see the diesel price this morning? No one can afford that!



You should try out the CarTogether car share Service in your city!



Possible projects

- Build an AI tool to extract relations between genes and chemicals
- Build an AI tool to discover symptoms in Swedish patient records
- Build an anonymization tool for Swedish patient records
- Build a tool to detect cell outlines and other cell structures in microscopy images
- Build a chat bot that informs people about low-carbon innovations (e.g. car sharing, smart building technology)