ARTIFICIELL INTELLIGENS

I vård och omsorg

NordAxon

Agenda

- Presentation
- Vad är artificiell intelligens?
- Vad kan artificiell intelligens göra?
- Exempel på möjliga appliceringar i vården
- Vad gör mitt företag
- Q & A

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Presentation

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VAD ÄR ARTIFICIELL INTELLIGENS?

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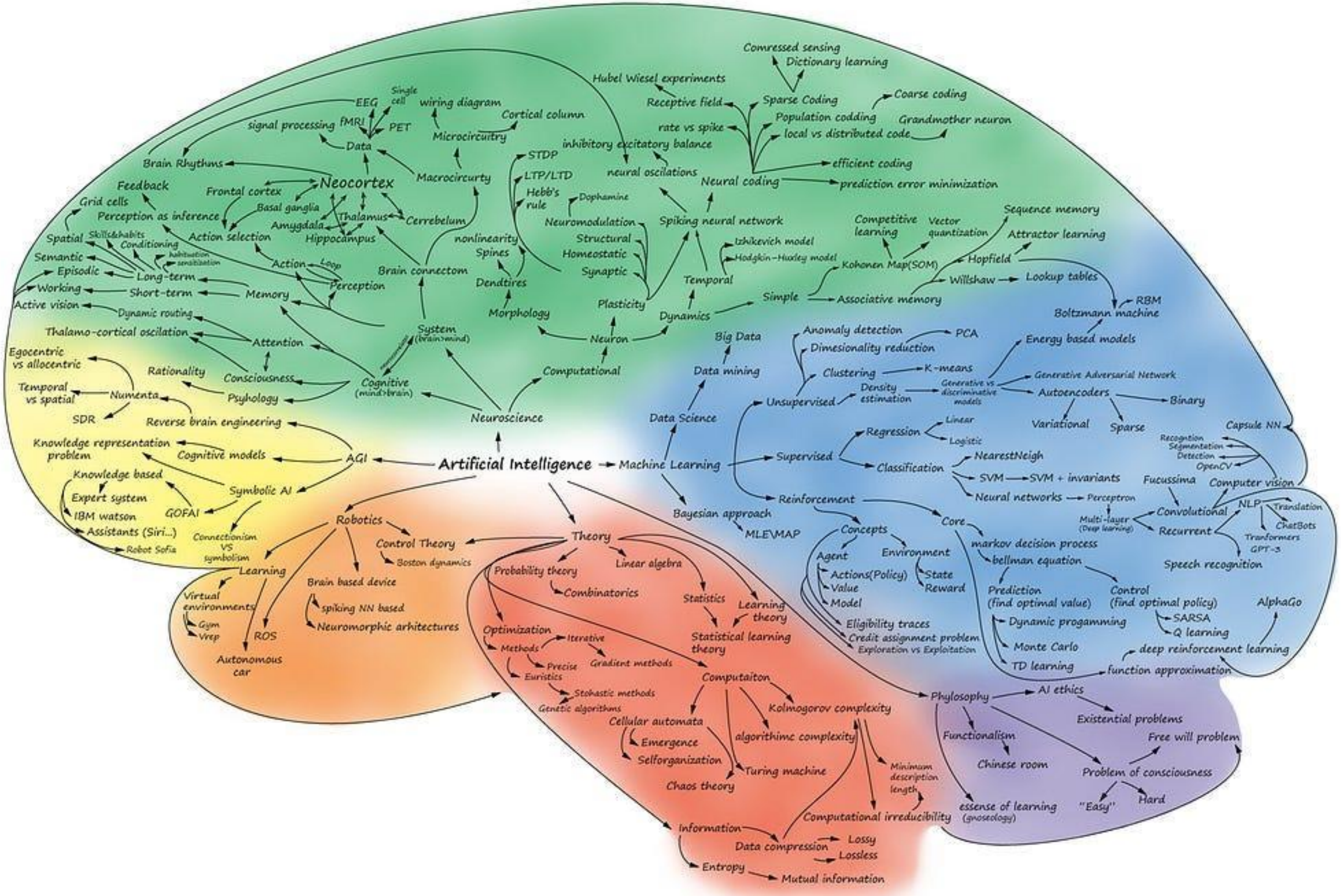
AI



Artificial Intelligence
Neuroscience
Computational
Neuron
Cognitive (mind>brain)
System (brain>mind)
Neocortex
Frontal cortex
Basal ganglia
Amygdala
Thalamus
Hippocampus
Cerrebelum
Brain Rhythms
Feedback
Grid cells
Perception as inference
Action selection
Action
Loop
Perception
Brain connectom
Data
EEG
Single cell
fMRI
PET
signal processing
wiring diagram
Microcircuitry
Cortical column
Macrocircuitry
Memory
Spatial
Semantic
Episodic
Working
Active vision
Skills&habits
Conditioning
habituation
sensitization
Long-term
Short-term
Dynamic routing
Thalamo-cortical oscilation
Attention
Consciousness
Rationality
Psyhology
nonlinearity
Spines
Dendtires
Morphology
STDP
LTP/LTD
Hebb's rule
Dophamine
Neuromodulation
Structural
Homeostatic
Synaptic
Plasticity
neural oscilations
inhibitory excitatory balance
Hubel Wiesel experiments
Receptive field
rate vs spike
Spiking neural network
Izhikevich model
Hodgkin-Huxley model
Temporal
Dynamics
Simple
Neural coding
Compressed sensing
Dictionary learning
Sparse Coding
Coarse coding
Population codding
Grandmother neuron
local vs distributed code
efficient coding
prediction error minimization
Competitive learning
Vector quantization
Kohonen Map(SOM)
Sequence memory
Attractor learning
Hopfield
Willshaw
Lookup tables
Associative memory
RBM
Boltzmann machine
Energy based models
Egocentric vs allocentric
Temporal vs spatial
Numenta
SDR
Reverse brain engineering
Knowledge representation problem
Cognitive models
AGI
Knowledge based
Expert system
IBM watson
Assistants (Siri...)
Robot Sofia
GOFAI
Symbolic AI
Connectionism VS symbolism
Robotics
Control Theory
Boston dynamics
Learning
Virtual environments
Gym
Vrep
ROS
Autonomous car
Brain based device
spiking NN based
Neuromorphic arhitectures
Machine Learning
Data Science
Data mining
Big Data
Bayesian approach
MLE\MAP
Unsupervised
Anomaly detection
Dimesionality reduction
PCA
Clustering
K-means
Density estimation
Generative vs discriminative models
Generative Adversarial Network
Autoencoders
Variational
Sparse
Binary
Supervised
Regression
Linear
Logistic
Classification
NearestNeigh
SVM
SVM + invariants
Neural networks
Perceptron
Multi-layer (Deep learning)
Convolutional
Recurrent
Fucussima
Computer vision
Capsule NN
Recognition
Segmentation
Detection
OpenCV
NLP
Translation
ChatBots
Tranformers
GPT-3
Speech recognition
Reinforcement
Concepts
Agent
Actions(Policy)
Value
Model
Environment
State
Reward
Core
markov decision process
bellman equation
Prediction (find optimal value)
Control (find optimal policy)
Dynamic progamming
Monte Carlo
TD learning
SARSA
Q learning
Eligibility traces
Credit assignment problem
Exploration vs Exploitation
deep reinforcement learning
function approximation
AlphaGo
Theory
Probability theory
Combinatorics
Linear algebra
Statistics
Learning theory
Statistical learning theory
Optimization
Methods
Iterative
Precise
Euristics
Gradient methods
Stohastic methods
Genetic algorithms
Computaiton
Cellular automata
Emergence
Selforganization
Chaos theory
Turing machine
Kolmogorov complexity
algorithimc complexity
Minimum description length
Computational irreducibility
Information
Data compression
Lossy
Lossless
Entropy
Mutual information
Phylosophy
AI ethics
Existential problems
Free will problem
Functionalism
Chinese room
Problem of consciousness
"Easy"
Hard
essense of learning (gnoseology)

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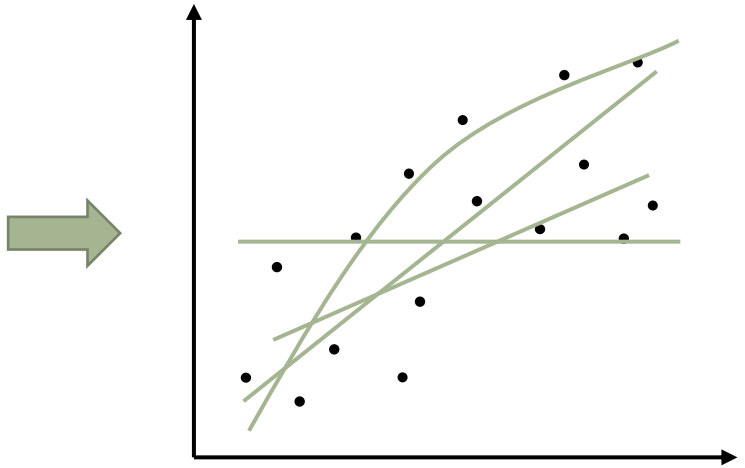
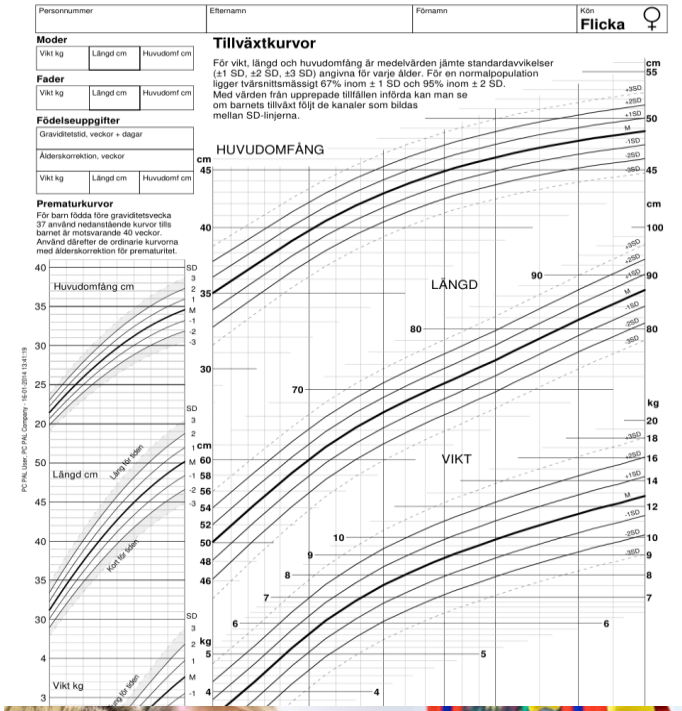
ALGORITMER

Ålder (mån)	Vikt (kg)
2	4,8
1	4,3
5	6,9
12	11,7
21	14,2
5	7,5
9	9,0
…	…



REGRESSION



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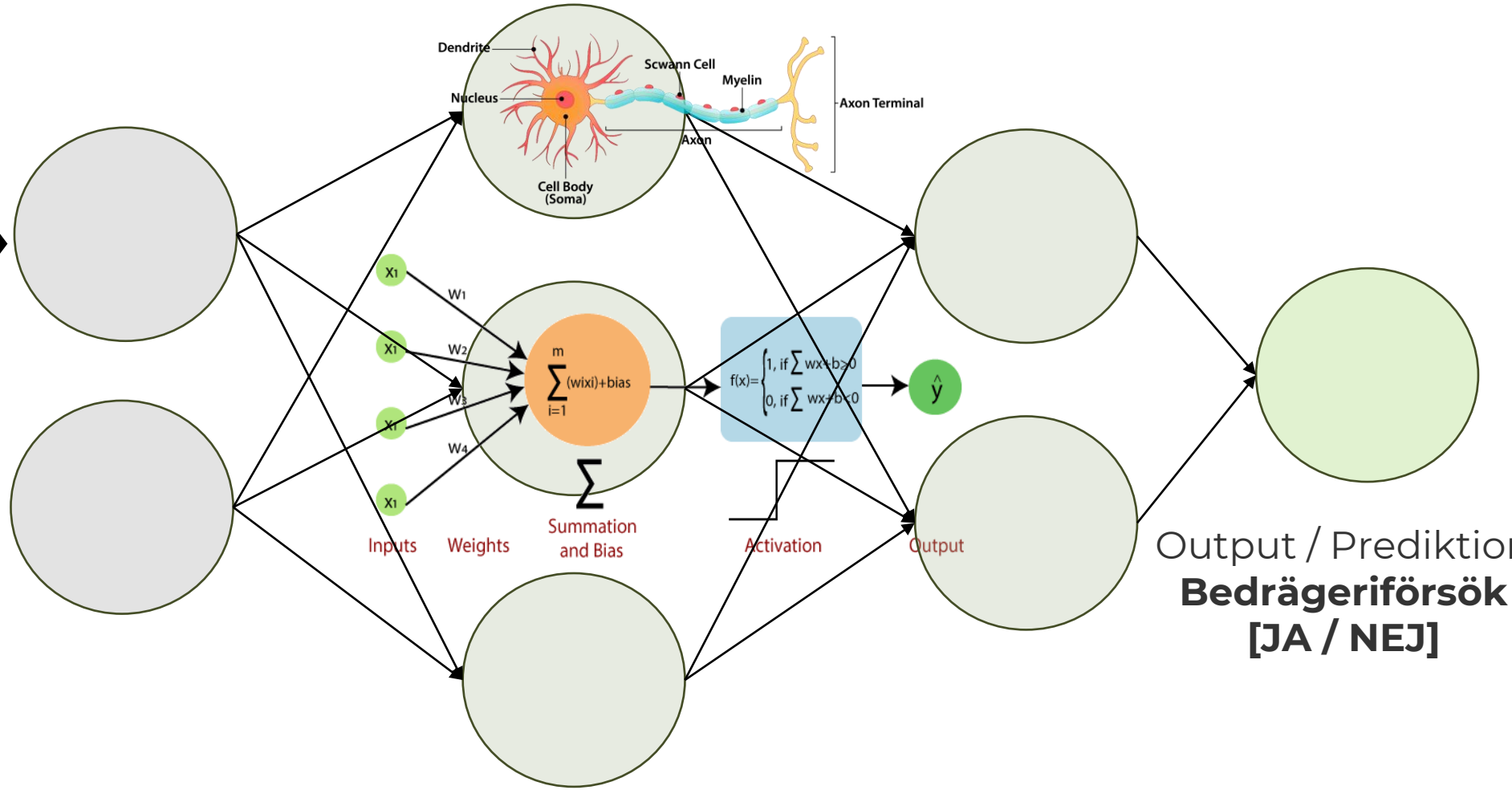
NEURALA NÄTVERK

Sentiment analys av ett samtal under skadeanmälan via telefon.

Input parameter 1
Variation i röstens ton

Input parameter 2
Rösthastighet



Output / Prediktion
Bedrägeriförsök [JA / NEJ]

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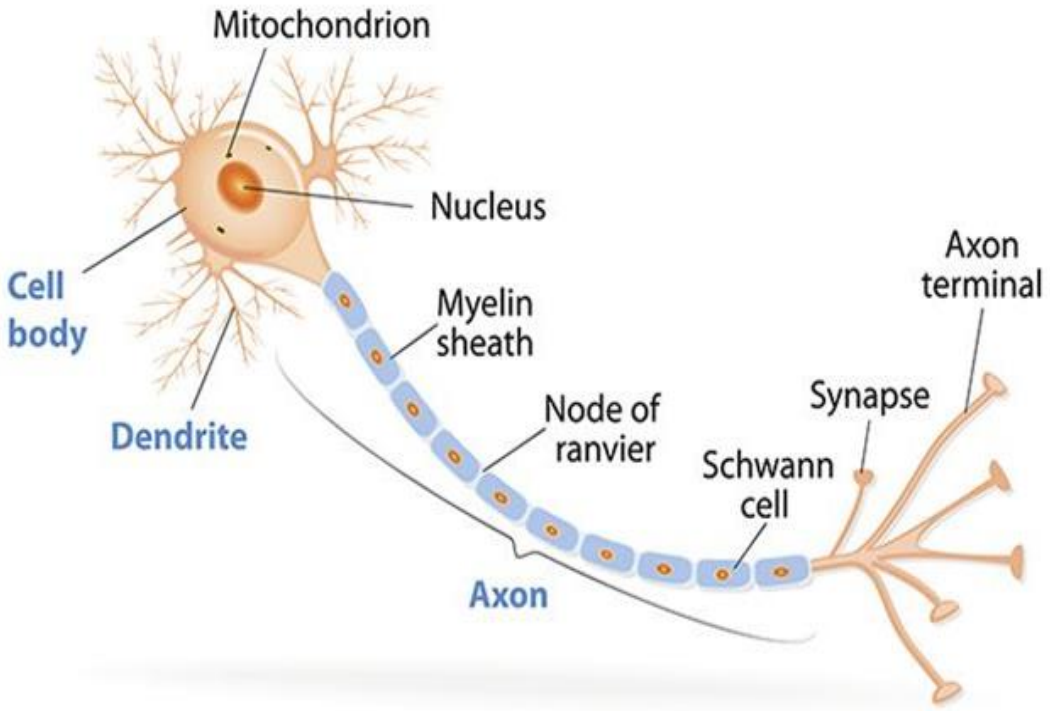
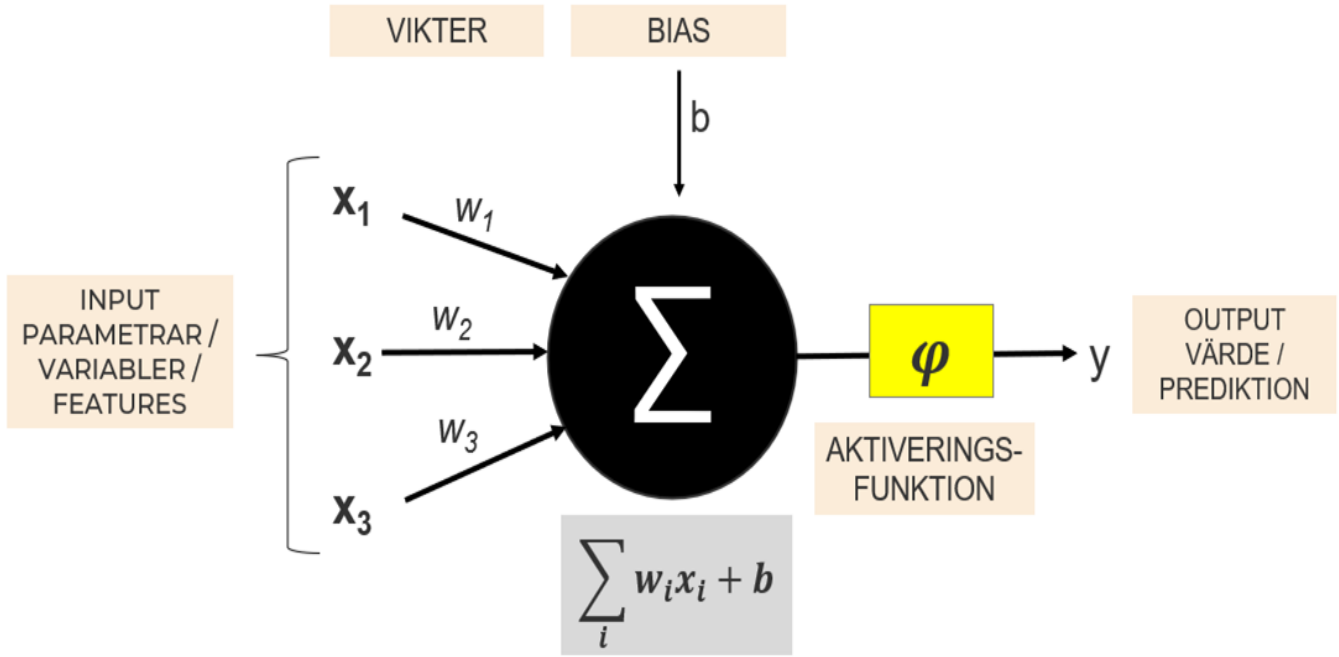
DIGITALA NEURONER





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VAD KAN ARTIFICIELL INTELLIGENS GÖRA

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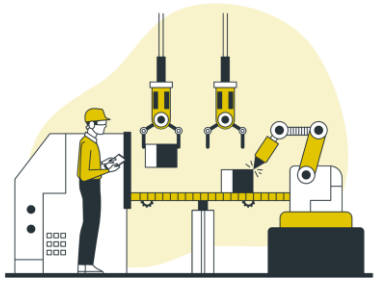
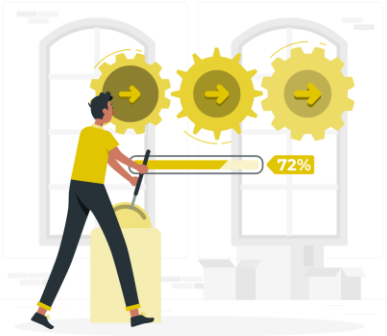
DOMÄNER FÖR AI





OPTIMERA	PREDIKTERA	AUTOMATISERA	ANPASSA	INTERAGERA
Optimera priser och villkorsändringar	Kundbortfall “churn”	Klassificering av bilder	Individanpassa kampanjer	Svara på frågor i kundtjänst och skador
Optimera arbetsflöden	Effekt av marknadsföring	Avstämningar	Anpassa kommunikation efter kontext och mottagare	Generera sammanfattningar, hitta nyckelinformation
Optimera bemanning och arbetsscheman	Risk för bedrägeri	Konkurrensanalys	Hemsida och app	Generera kod, bilder, design

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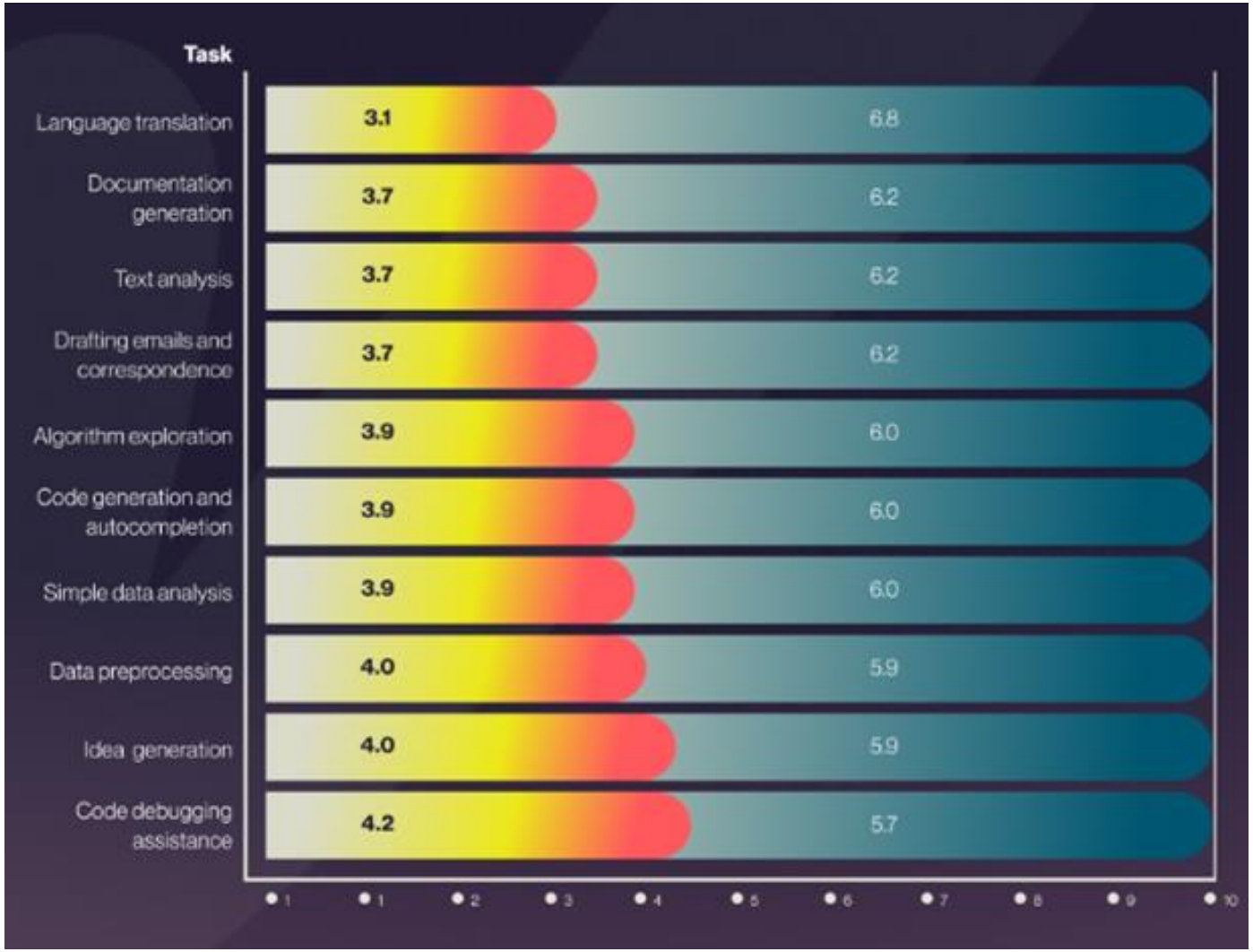
SPARA TID MED AI

Användning av Gen AI
ökar produktivitet med 150%

- Produktivitetsökning genom användning av GenAI drivna lösningar (ChatGPT-liknande, Copilot …)
- Antagande att en arbetsuppgift tar 10h att avsluta utan användningen.

Medeltid [h] med GenAI

Medeltid [h] sparad genom användning av GenAI



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MÖJLIGA APPLICERINGAR I VÅRDEN

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EXEMPEL

Using deep-learning models trained on data from 284,335 patients and validated on two independent datasets of 12,026 and 999 patients, we predicted cardiovascular risk factors not previously thought to be present or quantifiable in retinal images, such as age (mean absolute error within 3.26 years), gender (area under the receiver operating characteristic curve (AUC) = 0.97), smoking status (AUC = 0.71), systolic blood pressure (mean absolute error within 11.23 mmHg) and major adverse cardiac events (AUC = 0.70). We also show that the trained deep-learning models used anatomical features, such as the optic disc or blood vessels, to generate each prediction.

Question Can an artificial intelligence chatbot assistant, provide responses to patient questions that are of comparable quality and empathy to those written by physicians?

Findings In this cross-sectional study of 195 randomly drawn patient questions from a social media forum, a team of licensed health care professionals compared physician's and chatbot's responses to patient's questions asked publicly on a public social media forum. The chatbot responses were preferred over physician responses and rated significantly higher for both quality and empathy.

Early Prediction through AI: Machine learning applied to clinical data can predict Alzheimer's onset with 72% accuracy up to seven years in advance.

Shaping the Future of Older Adult Care: ChatGPT, Advanced AI, and the Transformation of Clinical Practice

Monitoring Editor: Yun Jiang and Jinjiao Wang

Kathleen Fear, PhD[2#1] and Conrad Gleber, MD, MBA[#1,2]

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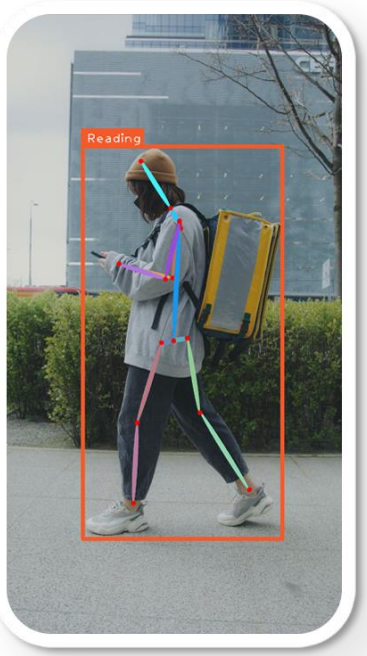
Abstract

Go to:

As the older adult population in the United States grows, new approaches to managing and streamlining clinical work are needed to accommodate their increased demand for health care. Deep learning and generative artificial intelligence (AI) have the potential to transform how care is delivered and how clinicians practice in geriatrics. In this editorial, we explore the opportunities and limitations of these technologies.



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SPRÅKTRÄNING

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ADMIN & TRANSKRIBERING

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EXEMPEL

Tolk

Larm och övervakning

Rumsassistent

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EXEMPEL

Resursplanerare

Diagnos

Individualiserad vård

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DOMÄNKUNSKAP

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Team

MELINA KATKIC

Grundare / CEO / Senior AI Delivery Leader

M.Sc. Computer Science (Lunds Universitet /LTH)
B. Sc. Business & Administration (Lunds Universitet)

FILIP BOLLING

Data Scientist / ML Engineer

Engineering Physics spec.Machine Learning (LTH)

MARCUS ASCARD

ML Engineer / Data Engineer

Electrical Engineering spec.Machine Learning (LTH)

HENRIK SILJEBRÅT

Senior Data Scientist /ML Engineer

PhD Computational Psychology (University of London)
M.Sc. Cognitive Science (Lunds Universitet)

VICTOR MÅRTENSSON

Data Scientist / ML Engineer

Engineering Physics spec.Machine Learning (LTH)

MARCEL NILSSON

ML Engineer / Data Engineer

Engineering Physics spec.Machine Learning (LTH)

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Services

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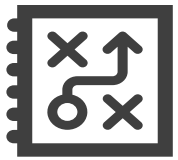

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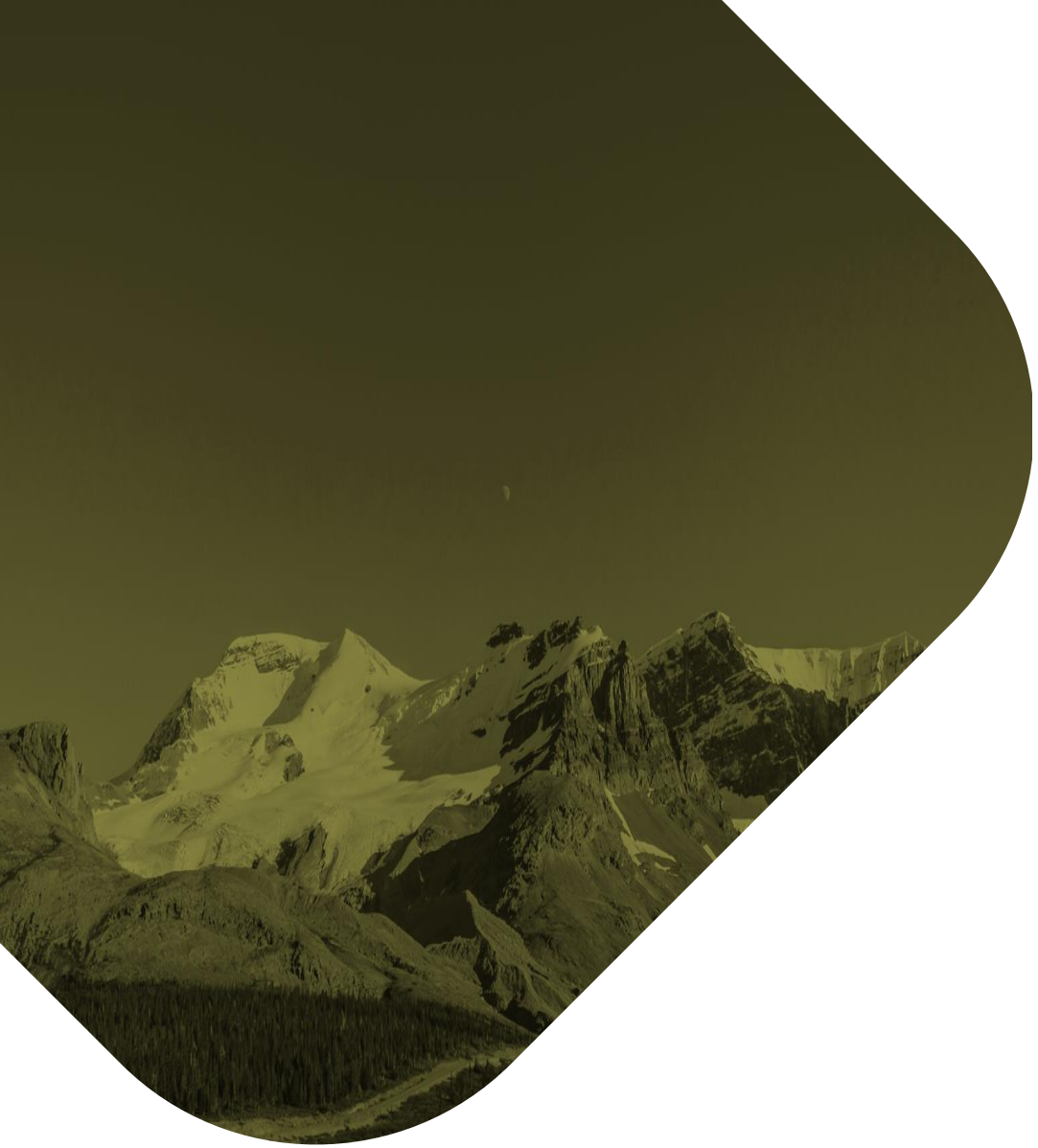

FRÅGOR & SVAR

[marcel.nilsson@nordaxon.com]

nordaxon.com

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