Distributed Healthcare as a Service (DHCaaS)

- AI- and Blockchain-Based Smart Community Healthcare

DataInsights

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Guangzhou Development District

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Company Overview

DataInsights
Empowering business analytics and optimization

DataInsights develops **Artificial Intelligence, Blockchain,IoT** software to enable systems to understand humans, learn like humans, collaborate with humans. Our products and services help **enterprises and ecosystems** capitalize on innovative technologies for operations and business optimization.

- Knowledge and Reasoning Engine
- Human Machine Interaction Engine
- Service Workflow Optimizer
- AI Micro Service Platform
- Blockchain and Consortium Chain
- Predictive Analytics Engine
- Visual Analytics Engine
- Acoustic Analytic Engine
- Other More…

IoT, Blockchain, Core Algorithms, and AI Engines

James Huang, Ph.D.

DataInsights (Hong Kong and Guangzhou, China)
Co-Founder/CTO

Dr. James Huang is currently Chairman, CTO and Co-Founder of DataInsights (Hong Kong and Mainland China) which is a leading software startup company specialized in applying Artificial Intelligence, Blockchain, Internet of Things, and other latest advanced technologies to help enable digital transformation and operations optimization.
Prior to establishing DataInsights in Hong Kong and China, James was Chief Scientist and Chief Architect of IBM GBS, Greater China, In recent years, James has led the technical implementation and delivery of 4 of the 10 most successful and high-impact AI projects executed around the world, which IBM announced and published in early 2016.

James has 30 years of significant industrial experience around the world. Over the years he has held senior and key positions including Managing Director, CTO, Partner, etc. at various world-renowned multinational companies such as Cray, SGI, Fujitsu,, ICG, IBM, *etc*.. He is especially experienced in designing and implementing large-scale enterprise IT solutions and products. During the many years of industrial practice, he has personally led design and development of over 30 enterprise-grade software systems leading to over 80 patents and intellectual properties and resulting in over 200-million-dollar-worth business projects. A huge number of technical professionals were trained out of these projects and many cross-industry and industry-university collaborative initiatives were also executed. These products and projects have dramatically helped many enterprises and governments around the globe transform their business operations, enhance efficiency, reduce costs, and enable new business models.

James is also Chief Expert of China Smart City Committee, Shenzhen Smart City Research Association, Chief Consultant of Guangzhou Blockchain Industrial Alliance, and many other professional associations, as well as Senior Consultant with many large companies. He also runs many research collaborations with various universities and research centers.

IoT Data-Driven Distributed Healthcare as a Service

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Building AI models and applications to

① Perform statistical and AI research of lifestyle of community members especially living-alone elders

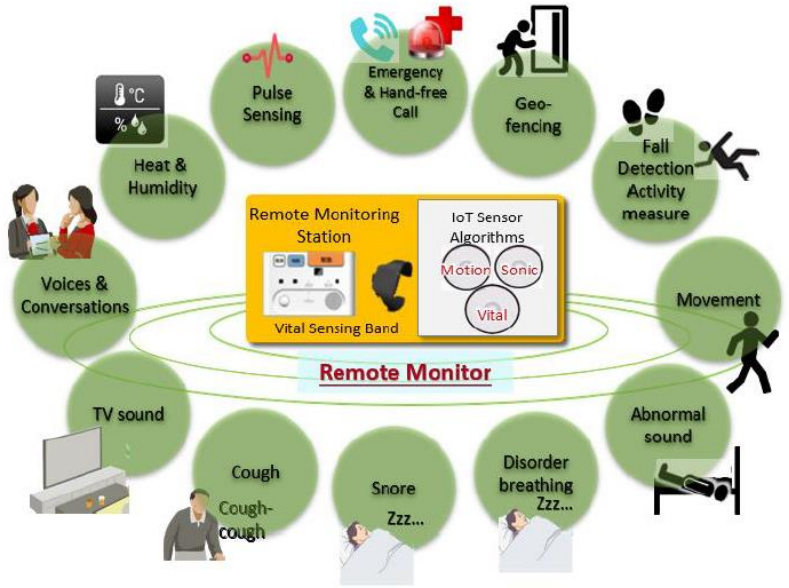
② Conduct correlation analysis between data characteristics and elderly conditions or statuses

③ Understand and predict individual behavior or change of behavior. For example, predicting risk of elder illness or falling or re-admission ahead of time.

④ Enable actionable notification of unusual events to friends & family or third-party services

⑤ Incorporate third-party healthcare and other types of services for better communities.

⑥ Promote precision medicine and reduce healthcare costs.



DHCaaS Advanced Analytics and Services

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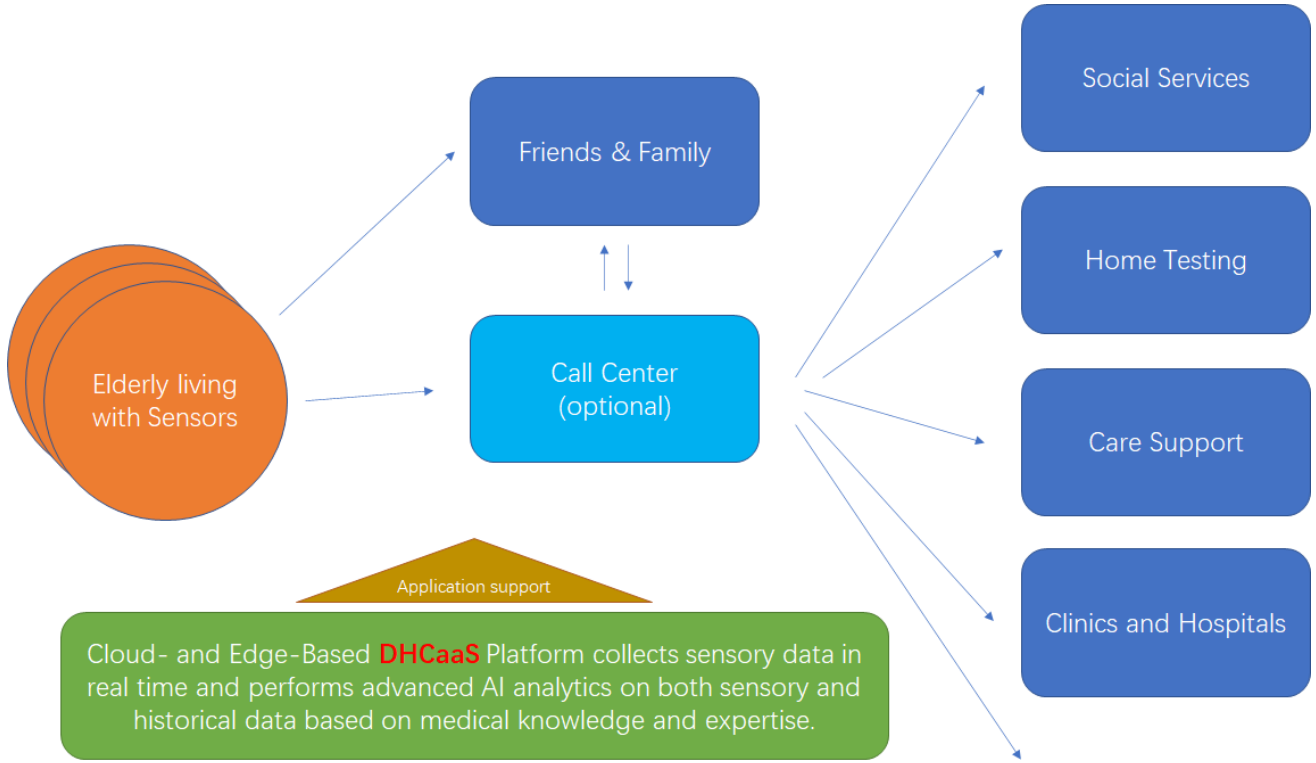
Collect and Analyze:

- ☐Real-time sensory data
- ☐Historical healthcare information
- ☐Environmental conditions
- ☐News events (optional)

Learn to:

- ☐**Establish trends** (e.g., temperature has been frequently increasing beyond normal ranges in the past 48 hours)
- ☐**Understand situation** (e.g., increase of coughs with chronic asthma problems)
- ☐**Generate alerts** (e.g., to call center, friends & family, care providers)
- ☐**Make recommendations** (e.g., recommend home visit and home blood testing)
- ☐**Predict potential problems** (e.g., potential asthma or cardio problems)
- ☐**Support services** (e.g., clinics, NGO elderly support and charity work)



Monitoring enrolled individuals all the time 24x7 for proactive decision making, actionable recommendations, and community services

Project Deliverables

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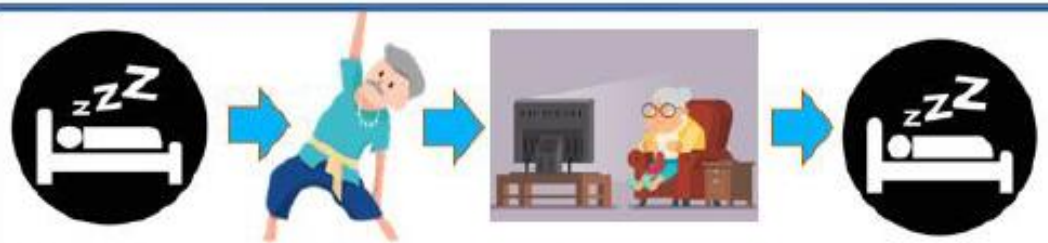

Identifying, classifying and clustering living patterns, behaviors and status of elderlies (Portrait of Elderlies)

Detecting and predicting changes in living patterns, status and abnormal behaviors.

Predicting potential risks and hazards, such as falling, common cold, re-admission, etc.

Alerts & Follow-up Recommendations

Visualization and Hot Alert Platform

Call Centre & 3rd Party Services

Statistical analytics and summarization of overall status of different elderly groups

User Manual

User Training

Big Data Analysis

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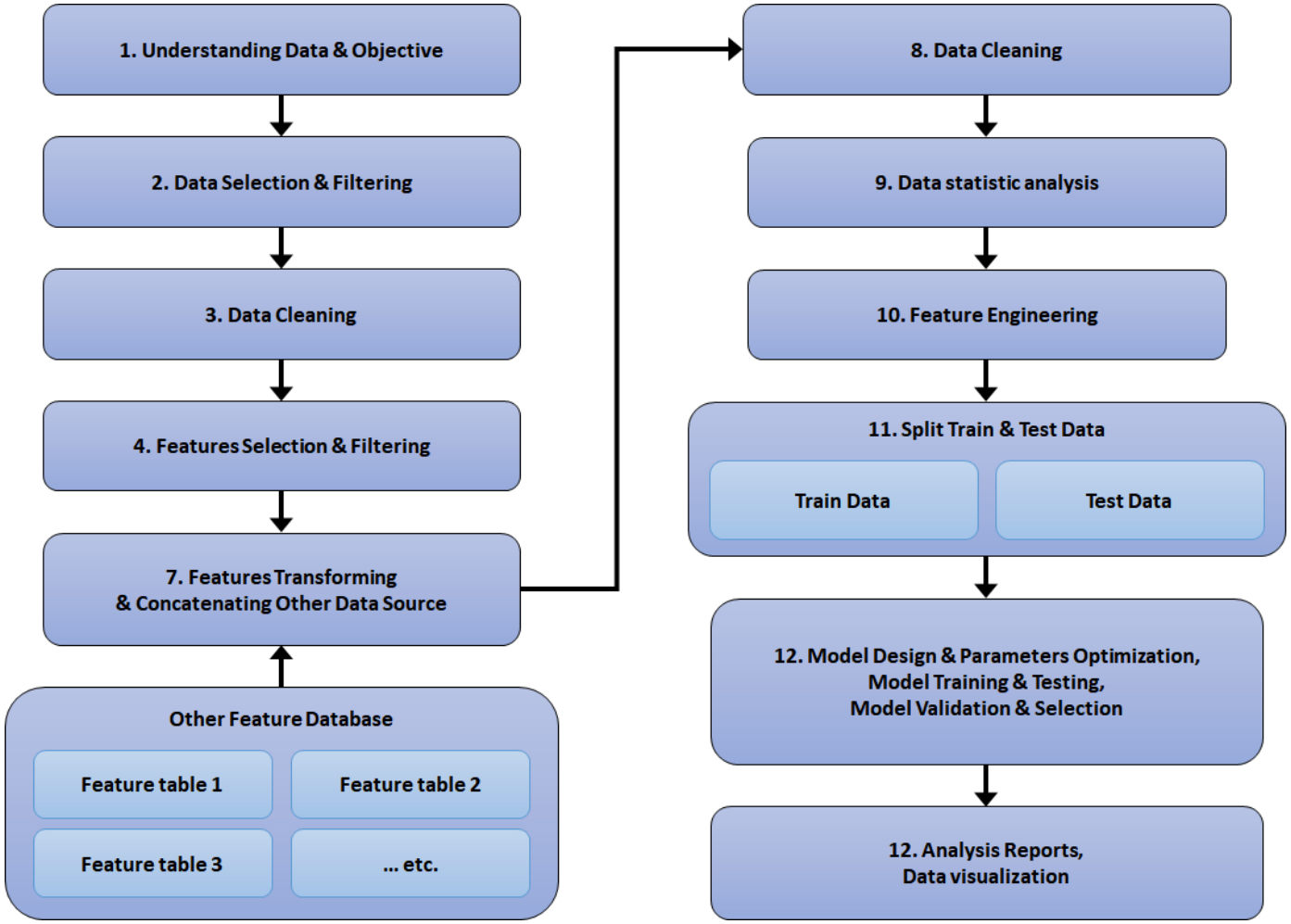
1. **Having over 30 kinds of algorithm models including:**
   - Classification models
   - Regression models
   - Deep learning models
2. **Building additional Features Database to improve the accuracy of models**
3. **Solutions for many kinds of analysis:**
   - Descriptive Analysis (what happened?)
   - Diagnostic Analysis (why did it happen?)
   - Predictive Analysis (what is likely to happen?)
   - Prescriptive Analysis (Artificial Intelligence, a combination of other three, what proactive actions to take?)



Sample of analysis flow chart

Data Modelling

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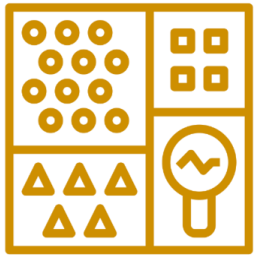
Regression

Prediction of a continuous quantity



Classification

Prediction of a categorical quality. Assignment of new observations to a group.

Clustering

Identify groups within a dataset.

Survival

Predicting “time to an event”.

Similarity

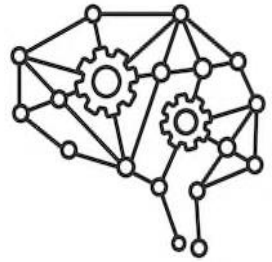
Measuring similarity and difference. Enabler for search & recommendation.

Association

Finding related entities or behaviours. See also: link prediction, collaborative filtering and recommender systems.

Profiling

Looking for commonality and distinguishing traits.



Deep Learning

Uses multi-layered artificial neural networks to identify features of dataset

Activities, Behaviors and Living Patterns of elderlies

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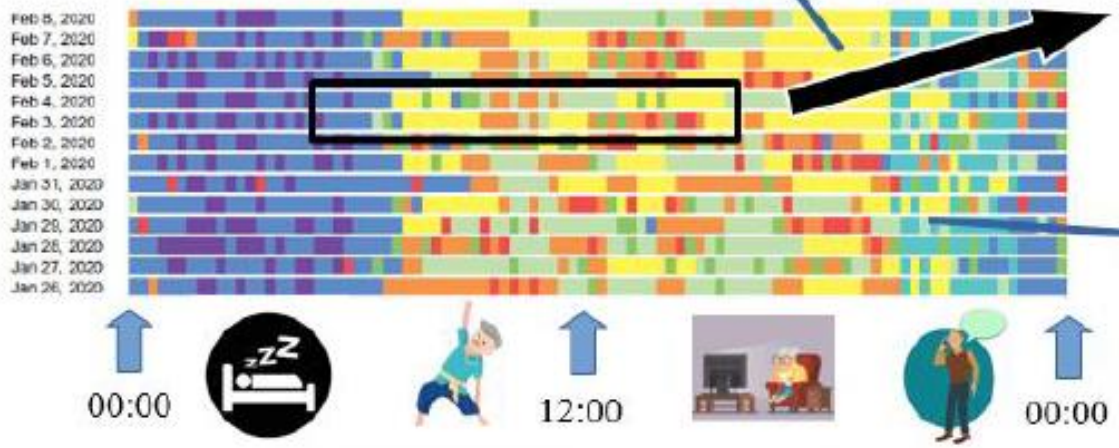
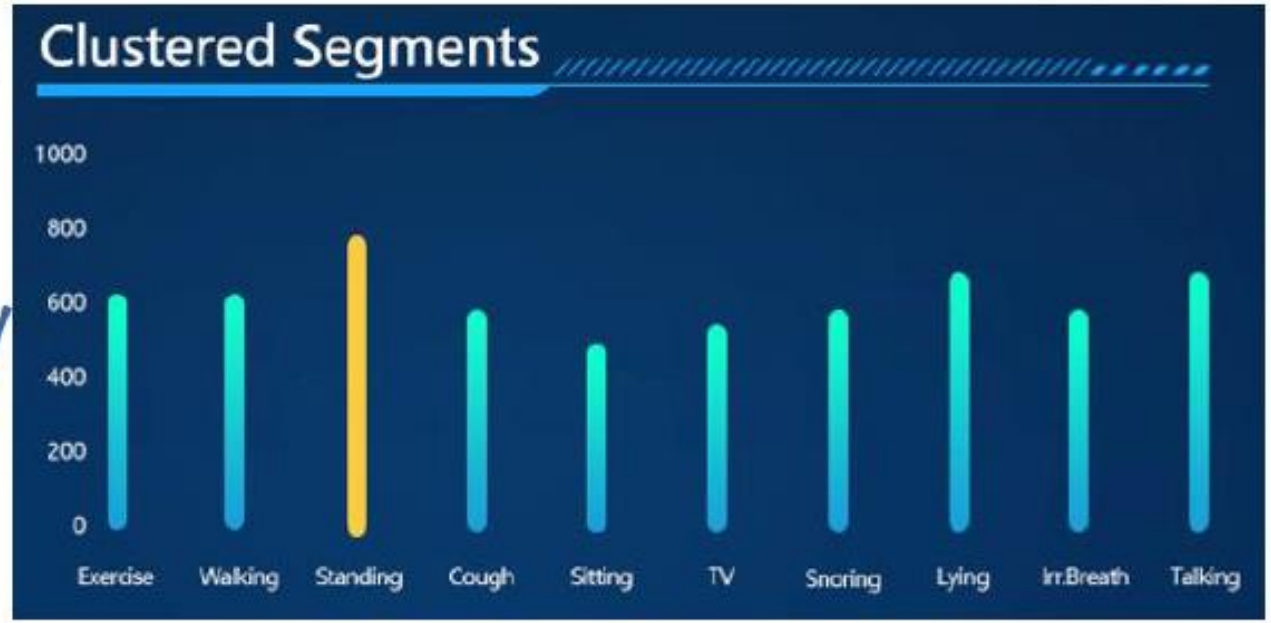
1. Activity Gantt View



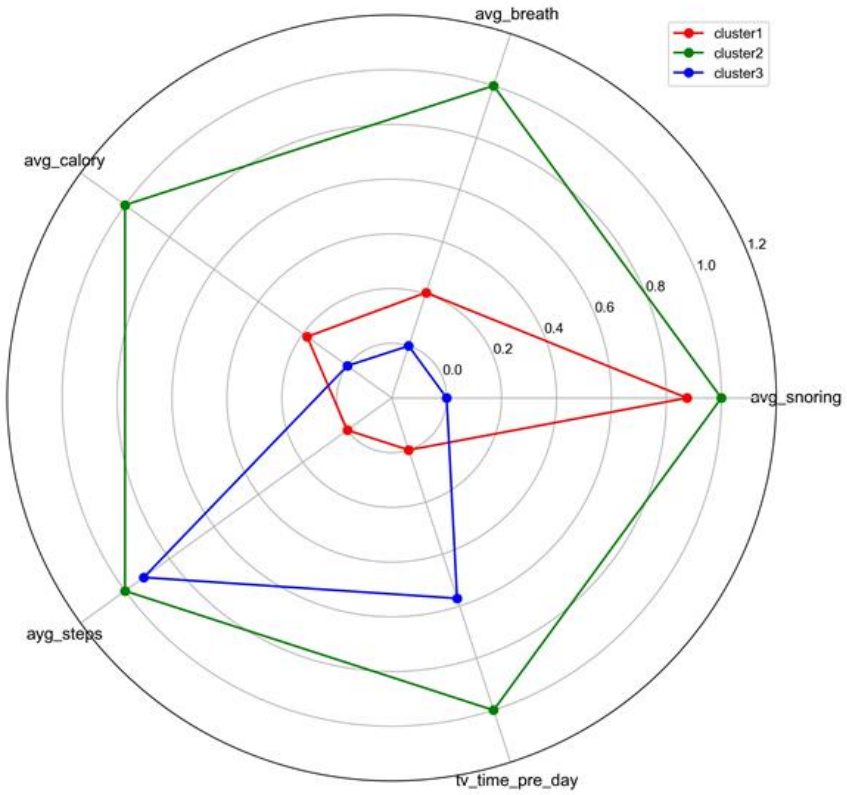
2. Showing activities such as walking, exercising, talking, watching TV … etc. on a timeline every day

Exercising	Sitting
Cough	Lying
Talking	Standing
Snoring	TV
Walking	Irr. breath

3. Graph showing amount of time spent / counts of different activities and behavior



Advanced Visualization and Notification



System users of different roles (User, Family, Call Center, Government Agencies, Social Service, etc.) sees different sets of data and visual reports and receive different alerts/recommendations and performs different tasks.

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