Pro²Future Workshop :: 2. Förderperiode (2021-2025)

zugleich 5. Pro²Future Partner Conference

Donnerstag, 06.02.2020, 10-16 Uhr
Festsaal der JKU Linz
Altenberger Straße 69, 4040 Linz

Shareholders of Pro2Future GmbH:

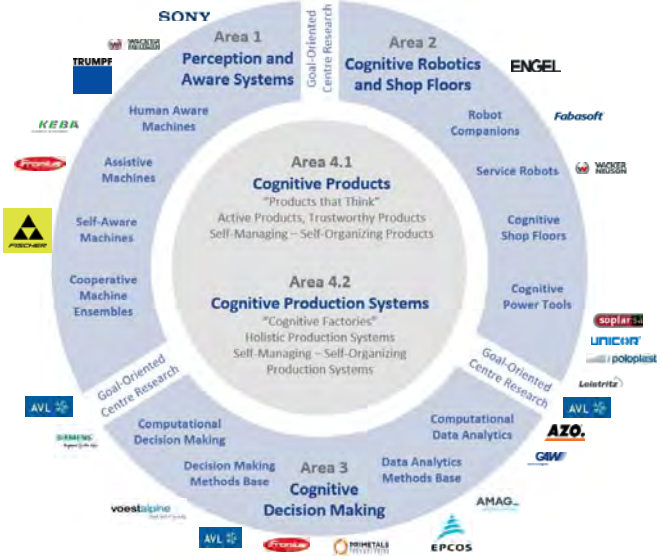
Public funding of Pro²Future:

Pro²Future – Alive!

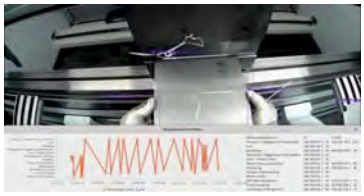
Univ.-Prof. Mag. Dr. Alois Ferscha
Wissenschaftlicher Geschäftsführer der Pro2Future GmbH

Pro²Future FP1

Pro²Future FP1

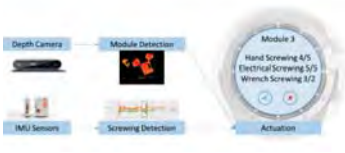


Area 1 :: Perception and Aware Systems



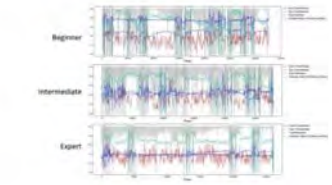
Human Aware Machines (Context-/Activity-/ Attention-/Load-/Skills-Experience-Awareness)

Science of Interaction & Cooperation (Complex-/ Multimodal-Interactions, Tangible Interfaces)



Assistive Machines (Sensor/Motor Assistance, Decision Making / Cognitive Assistance)

Self Aware Machines (Self-Description & - Management, Goal-Oriented Machines)



Cognitive Interfaces (Sensing/Reasoning/Acting, Emotion/Intent/Desire Experience/Skills)

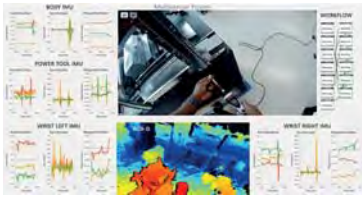
Cooperative Machine Ensembles (Ensemble-Configuration, -Coordination, - Mission Mgmt)

Area 1 :: Perception and Aware Systems

Cognitive Product Design (GUIDE, WorkIT, SeeIT)

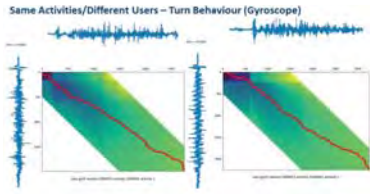
Skill level-based guided assistance (Wacker Neuson, KEBA, Trumpf)

Gaze Path Analytics, Cognitive Load Analytics (Wacker Neuson, KEBA, Trumpf)



Hierarchical Machine Learning: From Microactions to Macroactions (KEBA)

Simultaneous Localization and Mapping – 3D Reconstruction (3D Recon)

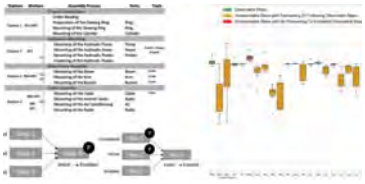


Skill-detection for personal product recommendation (Fischer4You)

Area 2 :: Cognitive Robotics and Shop Floors

Robot Companions (Searching, Wayfinding, Remote Sensing, Exploring, Logging, Tracing)

Cognitive Shop Floors (Aware / Goal Oriented / Self-Configuring & Self-Optimizing Shop Floors)



Reasoning & Acting : Inferring work progress based on incomplete observations

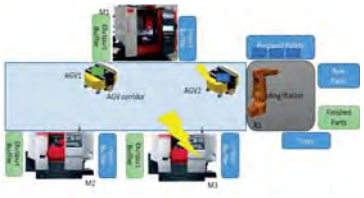
Service Robots (Picking, Handling, Carrying, Moving, Teleoperation, Remote Interaction)

Mechatronic Systems Design for Adaptability

Digital/Virtual Factories (Reference Architecture, Integration with ERP/EPM, Interoperability)

Area 2 :: Cognitive Robotics and Shop Floors

Adaptive Production Systems (A2PS, Wacker Neuson)

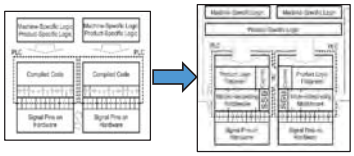


Adaptive, Predicting Self-loading Station (APS.net, ENGEL)

Engineering Collaborative Machines (A2PS, Wacker Neuson)

Adaptability of Complex Systems (APS.net, ENGEL)

Cloud-based Interoperability of Adaptive Systems (A2PS, Fabasoft)



Complex Adaptive Systems (APS.net, ENGEL)

Area 3 :: Cognitive Decision Making

Computational Decision Making (Collective Choice Modelling, Forecasting, Heuristics)

Predictive Data Analytics (Forecasting, Self-healing Systems, manag. unforeseen situations)

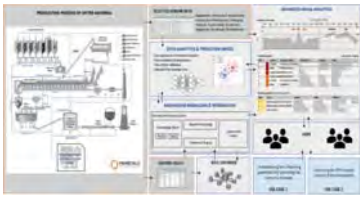
Complexity Management (Generic Data Vis., Data Mining, Knowledge Discovery)

Computational Data Analytics (Data Consistency / Integrity / Validity, Mining and Discovery)

Hybrid Optimization (Holonic Manuf. Systems, Resource Efficiency Resilience)

Decision Support Systems (Information Logistics, Real Time Process Planning, Autom. Processes)

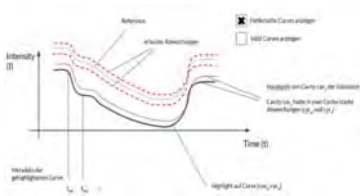
Area 3 :: Cognitive Decision Making



Improving production amount and quality in the metal sintering process (SINRPO, Primetals)

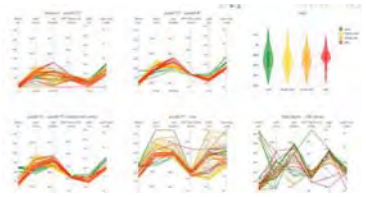
Predictive Maintenance for Production Systems and Products (GuFeSc, Fronius)

Scalable condition monitoring system for cognitive test environments (ConMon, AVL)



Visual Analytics & Visual Prototype of Polymer Injection Molding Machines (MoldSonics)

Guidance and Assistance (OnDaA, voestalpine)



Reduction of Production Rejects (RedUsa, AMAG)

Area 4.1 :: Cognitive Products

Products that Think, Active Products, Trustworthy Products

Machines Adapting to Humans

“Thinking” Robots

Machines Cooperating with Machines

Selfmanaging & Selforganizing Products

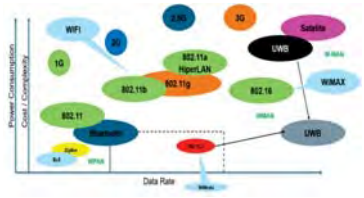
“Thinking” Shop Floors

Area 4.1 :: Cognitive Products

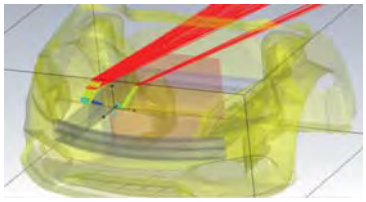
Analysis & Calibration of Smart & Cognitive Simulation Environment (CAVL-SD, AVL)

Development Processes and Tools for Cognitive Products (Simatic Failsafe, Siemens)

Scoping Unified Dependable Wireless Services for Cognitive Products (PREDISCOVER)



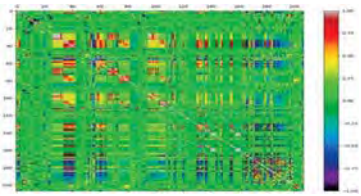
Finalized multiperipheral demonstrator for Cognitive Smart Grids Monitoring (CSG, Siemens)



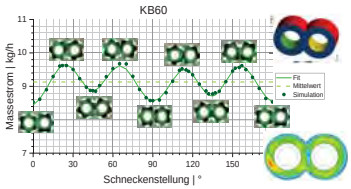
Simulation Environment for Internet of Cognitive Products and Production Systems (DRIWE, AVL)

Dependable, Interoperable and Adaptive Communications (CSG, Siemens)

Area 4.2 :: Cognitive Production Systems

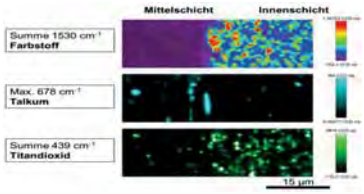


Industry 4.0 at an Extrusion Plant – Correlation Matrix of More Than 200 Different Signals



Simulation of Cognitive Polymer Processing

Selfmanaging Production Systems



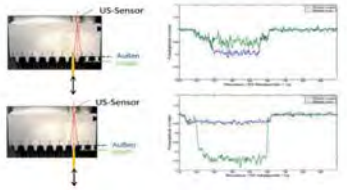
Cognitive Co-Extrusion

Selforganizing Production Systems

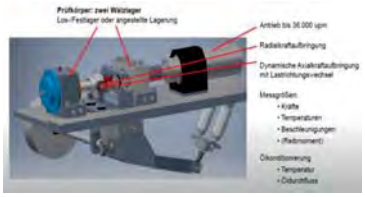
Reliable & Trustworthy Data

Area 4.2 :: Cognitive Production Systems

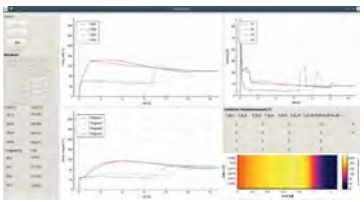
Process Optimization in Co-Extrusion (CoExCo, Soplar, Poloplast)



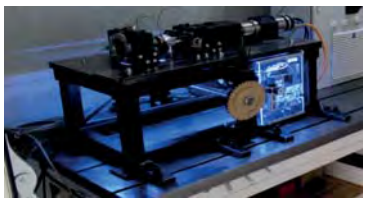
Cognitive Extrusion of Corrugated Pipes (CoExCo, GAW, Unicor)



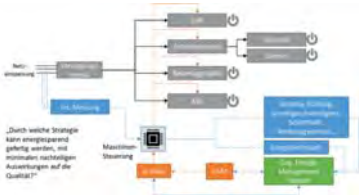
Adaptive Smart Production (DP1, AVL)



Upgrading Extrusion and Compounding Systems with Cognitive Skills (CoExCo, AZO, Leistritz)



Prototype of Cognitive Bearing Testbed (DP1, AVL)



Cognitive energy management systems (ENERMAN-1, Scientific Partners)

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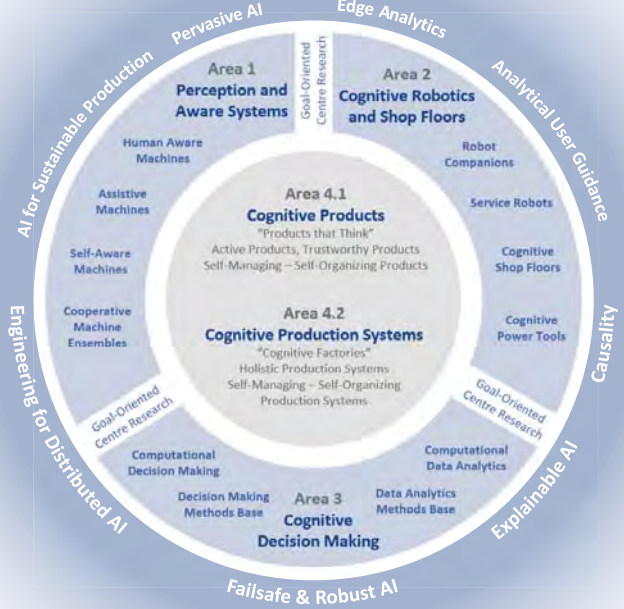
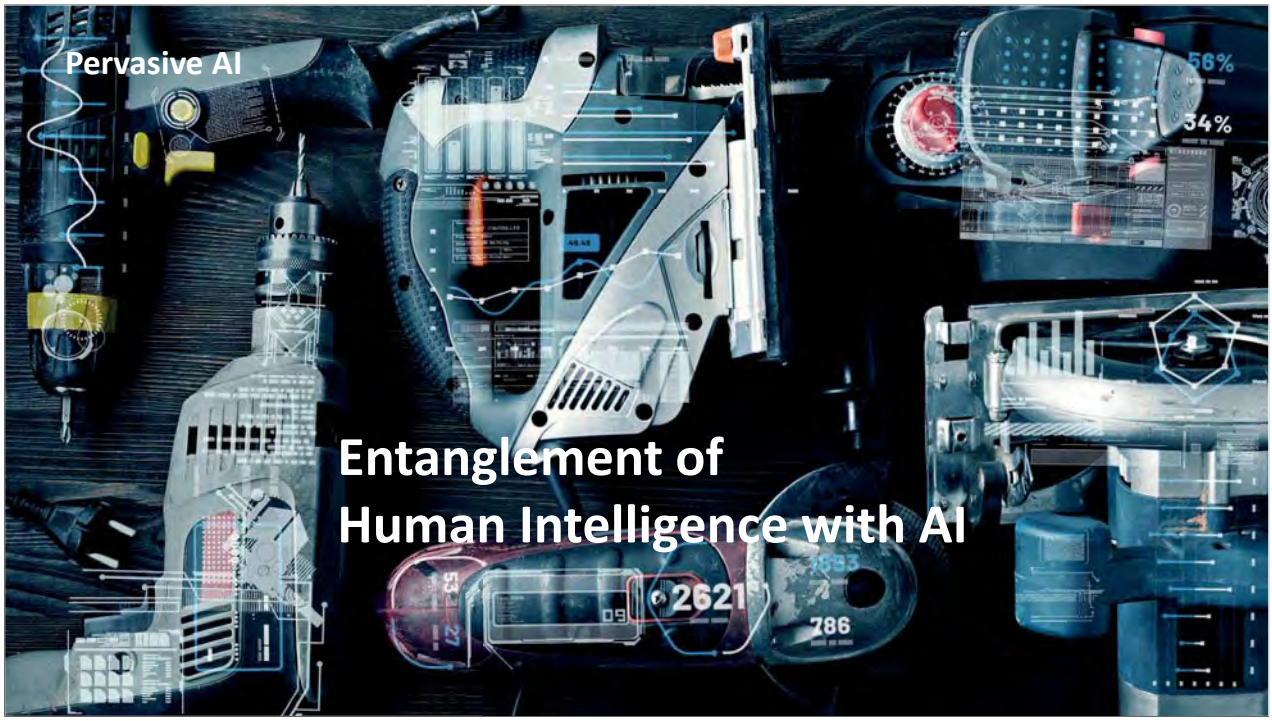
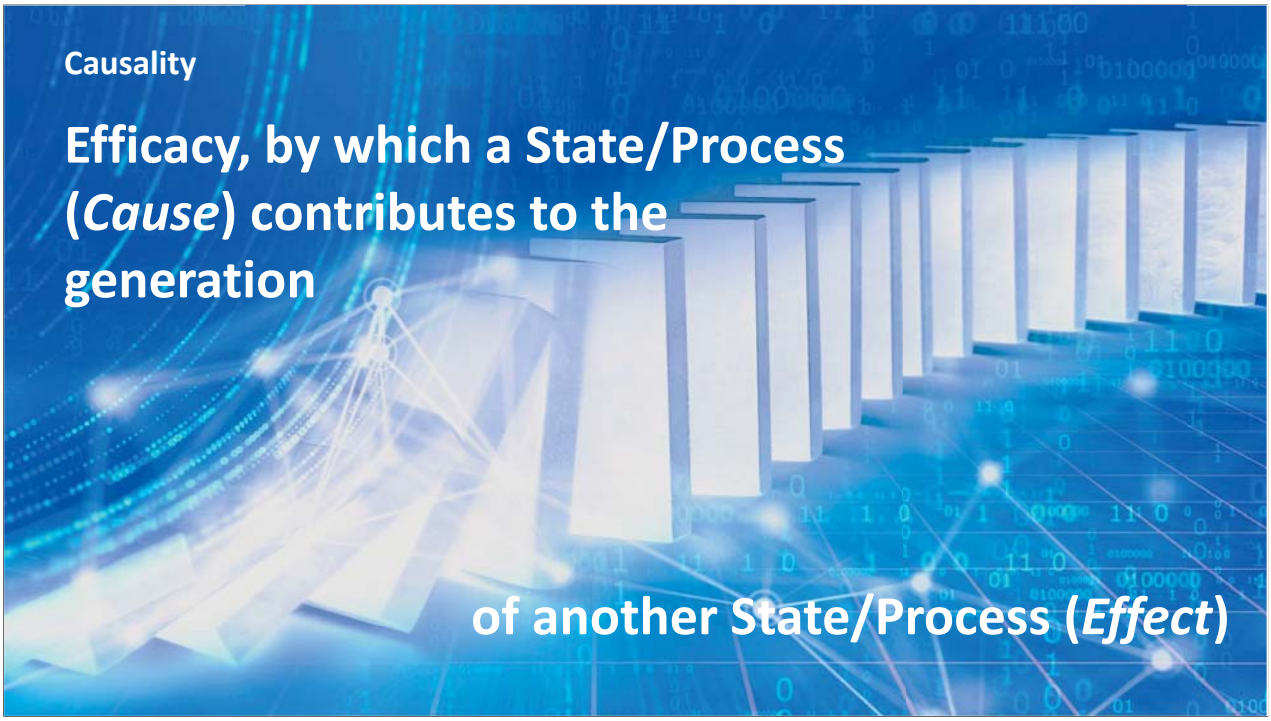


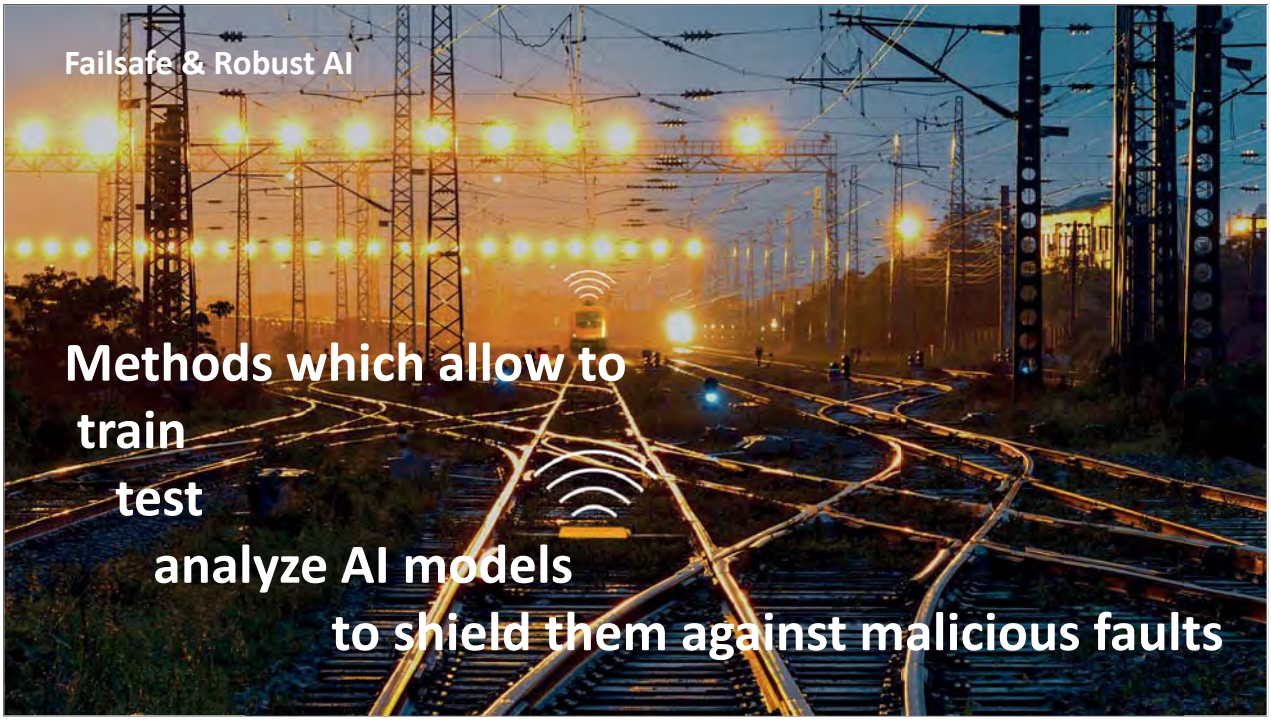

Pervasive AI
Entanglement of
Human Intelligence with AI


Edge Analytics
Bringing Intelligence
closer to the
Product
and Production Processes


Analytical User Guidance
Understand
the Current Situation,
and adapt to
Individual User Needs


Causality
Efficacy, by which a State/Process (*Cause*) contributes to the generation
of another State/Process (*Effect*)


Explainable AI
Explain the link between the
AI model predicting the production
and the factors that influence the production


Failsafe & Robust AI
Methods which allow to
train
test
analyze AI models
to shield them against malicious faults

Pro²Future

The Future of Products and Production Systems Is Cognitive!

Shareholders of Pro2Future GmbH:

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FFG Das Land Steiermark SFG