FORTHCOMING SPECIAL TOPIC

Artificial Intelligence in Agriculture

Besides the three classical production factors *land*, *labor* and *capital*, the factor "*information and knowledge*" becomes more and more important. This specifically holds for the agricultural domain because we are faced to the challenge that we have to double the crop yields until 2050 to feed the expended 9 Billion of people worldwide. Since the amount of arable land in developed countries is shrinking we have to concentrate on the better employment of knowledge and technology. This way, GPS with its area-wide spatial reference service already enabled a new dimension to the optimization of production processes in crop farming. In addition, first approaches of a standardized IT-infrastructure realize a promising basis to exploit the growing availability of geospatial information, reliable weather forecasts, soil quality records, status reports about plants, tips for yield optimization and environmental protection towards a better economizing. The Web of Services in combination with mobile networks allows that a future GPS- and sensor-based tractor connects to the wireless sensor network of the present cropland in order to query the current soil moisture and other parameters to optimize upcoming tasks and workflows.

Especially for the Artificial Intelligence, this context reveals a variety of high-potential technologies to be applied, as the agricultural and environmental domains provide a steadily growing pool of publicly accessible knowledge, which is financed and maintained from governmental organizations. Innovative AI technologies can significantly contribute to organize, connect, and further develop this knowledge in order to better supply the collective demand for food.

Topics for the call-for-papers (not limited to) are:

- Instrumentation and Sensor Technology
- Information Management
- Ergonomics in Agriculture and Food Processing
- Environment Control
- Data Mining
- Location-based Services
- Forecasting Systems
- Robotics and Mechatronics
- Resource Planning
- Mobile, Collaborative Agents
- Innovative Interaction/Operating Concepts/Paradigms
- Optimization of Value Chains
- Intelligent Soil Management (Cultivation of Land)
- AI-based Evaluation and Decision Making
- Precision Agriculture
- Simulation

In addition to technical research papers, this special issue will accept reports from project and dissertations as well as discussion and market reports. This should provide a comprehensive overview of current activities in this area. Interested authors are asked to contact the guest editor of this issue a soon as possible:

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