FEATURE SECTION EDITORIAL

# Behavior monitoring and interpretation

The annual workshop on Behavior Monitoring and Interpretation (BMI) was launched in 2007. It is co-located with the German conference on Artificial Intelligence, and hence, receives much attention in the research community investigating intelligent means for behavior monitoring and interpretation. In the meantime two edited books have been published at IOS Press [1, 2], involving some of the most challenging investigations in this field.

The edition of the workshop in 2009 took place co-located with the 3D-GeoInfo workshop in Ghent, Belgium. A specific focus of this workshop was the studying of moving objects since from the previous editions it has been learned that a great deal of research is going on in the context of the analysis of the spatiotemporal behaviors of people as well as vehicles, making possible a workshop dedicated to moving objects. The range of topics of the Ghent workshop included the monitoring of indoor spatiotemporal behaviors of elderly patients, the tracking of both tourists in urban areas and vehicles at urban intersections as well as different theoretical spatiotemporal representations. The papers are published at CEUR [3].

From the 12 papers which have been presented at the Ghent workshop, the best one has been selected for publication in JOSIS. In their paper, Markus Höferlin, Benjamin Höferlin, Daniel Weiskopf, and Gunther Heidemann deal with the most sophisticated sensor that captures spatiotemporal information, namely with video capturing. They describe their system for video analysis which combines automatic video analysis techniques and methods to visual analytics. By this means, they arrive at a system that is both efficient due to the automatic components and reliable due to the humans' pattern recognition abilities. The latter are employed by visualizing video features, in particular trajectory information along sequences of video frames, giving the user a sufficient amount of details about the analysis results and letting him in turn giving the system relevance feedback. Additionally, graphical statistics guide the user by improving the system performance. The authors evaluated their system in the context of the IEEE VAST Challenge 2009, where they received two awards for their video analysis tool. Basically, the detection of people and their behaviors, such as suspicious meetings in the context of a criminal story, and even the interpretation of their intentions had to be addressed. While it is hardly possible to automatically detect vaguely defined targets such as people, let alone to interpret their behaviors, an important issue was to find a balance between what can reliably be done by video analysis methods and how the human user compensates for what the limits of automatic analysis tools are. The proposed solution consists of several kinds of visualizations, among which some show video frames overlaid by statistical summaries

of movement behaviors or other information. Means for letting the user interact with the video system enables the further exploration of the data as well as the verification of hypotheses.

Publishing the best BMI paper in this journal, I hope to direct the attention of the JOSIS readership to the BMI event. I shall thank Nico Van de Weghe for the local organization and the other co-organizers Roland Billen and Philippe De Maeyer for their support. Eventually, we are thankful to all authors contributing to the Ghent event and to the members of the program committee of the BMI workshop, providing the authors valuable reviews.

# References

[1] GOTTFRIED, B., AND AGHAJAN, H., Eds. *Behaviour Monitoring and Interpretation: Smart Environments.* Series on Ambient Intelligence and Smart Environments. IOS Press, Amsterdam, 2009.

[2] GOTTFRIED, B., AND AGHAJAN, H., Eds. *Behaviour Monitoring and Interpretation: Well-Being.* Series on Ambient Intelligence and Smart Environments. IOS Press, Amsterdam, 2011.

[3] GOTTFRIED, B., VAN DER WEGHE, N., BILLEN, R., AND DE MAEYER, P., Eds. *Proc. Workshop on Behaviour Monitoring and Interpretation: Moving Objects in a Three-Dimensional World.*, vol. 541 of *CEUR Proceedings.* 2009. urn:nbn:de:0074-541-4.

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