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- **Marina Gavrilova**
University of Calgary, Canada
- **Vaclav Skala**
University of West Bohemia, Czech Republic

**23rd International Conference in Central Europe on
Computer Graphics, Visualization and Computer Vision
WSCG 2015
Plzen, Czech Republic
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Data Mining and Data Analytics in Biometric Security

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ABSTRACT

The security research domain has recently witnessed tremendous growth with respect to all aspects of information access and sharing. There has been notable progress in developing successful approaches to tackle the problem of user authentication. Among those approaches, biometric-based authentication has firmly established itself as one of the most reliable, efficient, and versatile tools for providing discretionary access control to a secure resource or system. While state-of-the-art methods for biometric authentication are becoming increasingly more powerful and better understood, the same, unfortunately, cannot be said about security of users populating on-line communities or cyberworld.

Ensuring safe and secure communication and interaction among users and their on-line identities presents unique challenges to academia as well as industry, government, and the public. Despite the fact that those challenges are regularly making headlines in the news, in government reports and in the IT security domain, there is a lack of effort to address this urgent problem. The limited efforts that do exist are currently restricted to network security, password protection, encryption, database security and policy-making efforts. However, one of the most crucial components for ensuring biometric and on-line security: the relationship between communication among users and user authentication, has been largely overlooked. This crucial issue requires a systematic study and a targeted effort to develop effective machine intelligence security solutions for cyberworlds.

SHORT BIOGRAPHY

Marina L. Gavrilova received her M.Sc. in Applied Mathematics from Moscow Lomonosov State University in Moscow, Russia, in 1993, and her Ph.D. in Computer Science from the University of Calgary in 1998. She is currently an Associate Professor in the Department of Computer Science, University of Calgary. Dr. Gavrilova's research interests lie in the areas of biometric security, cognitive sciences, pattern recognition, social networking, and cyberworlds. Prof. Gavrilova is the founder and co-director of the Biometric Technologies Laboratory, with over 120 journal and conference papers, edited special issues, books and book chapters, including the World Scientific Bestseller (2007), *Image Pattern Recognition: Synthesis and Analysis in Biometrics and Multimodal Biometrics and Intelligent Image Processing for Security System*. Together with Dr. Kenneth Tan, Prof. Gavrilova founded the ICCSA Series of International Events in 2002. She was co-Chair of the International Workshop on Biometric Technologies (BT 2004) and General Chair of International Conference on Cyberworlds (CW2011), and currently serves as Founding Editor-in-Chief of *Transactions on Computational Science* journal, Springer. Prof. Gavrilova has given invited keynotes and panel lectures at such prestigious international events at INDIN 2003, 3A '06, ICBACE 2008, ICCSA 2010, ICCI*CC 2011 and 2013, CyberWorlds 2012, GRAPHICON 2012 and appeared as panelist at the 14th Security and Privacy Conference. She has given invited talks at DIMACS Rutgers University, USA; Bell Labs, USA; Microsoft Research, Redmond, USA; Samsung Research, South Korea; Purdue University, USA, and at other universities worldwide. Her research was profiled in newspaper and TV interviews, most recently featured in Exhibit at National Museum of Civilization, Quebec (2012), on Discovery Channel Canada (2013) and in *Business Magazine*, Calgary, Alberta (2014).

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