The Doctoral College "Computational Perception" at TU Vienna and the Austrian Institute of Technology (AIT), in collaboration with the WIE (Women in Engineering) Group of the IEEE Austria Section, invite you to the following talk by Dr. Branislav Kisačanin.

The Embedded Vision Engine (EVE) for Computer Vision Applications

Dr. Branislav Kisačanin

When? **Thursday, July 11th, 2013**
13:15

Where? **Seminar Room 188/2**
1040 Vienna, Favoritenstraße 9-11
4th Floor, Staircase 3

Abstract

The Embedded Vision/Vector Engine (EVE) is a specialized fully programmable processor to accelerate computer vision algorithms. The architecture's principal aim is to enable low latency, low power, and high performance vision algorithms in cost sensitive embedded markets. EVE's memory architecture is unique and differentiated relative to standard processor architectures, allowing for a high degree of sustained internal memory bandwidth for compute intensive algorithms. The presence of custom pipelines and units, allows for accelerating and harnessing the high levels of data parallelism found in computer vision algorithms. This presentation will review the key processing needs and challenges found in algorithms in advanced driver assistance systems (ADAS) markets. It then motivates the need for a dedicated processor that adds specialized units and pipeline stages to accelerate challenging processing requirements. EVE complements the standard C6000 DSP from Texas Instruments by excelling at low-level and mid-level vision algorithms, freeing up the DSP to leverage VLIW and excel at high-level processing algorithm. The combination of DSP and EVE in TI's SOC's allows developers to harness new levels of performance, drastically reducing the time to market for developing performance-intensive safety-critical ADAS applications.

CV

Branislav Kisačanin is the CTO for embedded computer vision at Interphase Corporation. Prior to that, he had been with Texas Instruments (2007-2012) and with Delphi Electronics and Safety (1998-2007). With several books and special issues of computer vision journals, Branislav is a recognized expert in embedded computer vision. He organized numerous CVPR workshops on embedded computer vision and human-computer interaction, held tutorials at IEEE CVPR and IEEE ICASSP, and has 5 US and EU patents. For his contributions to the Delphi intellectual property portfolio, Branislav was inducted into the Delphi Innovation Hall of Fame (2006). While with TI, Branislav contributed his embedded computer vision expertise to several products targeted at the embedded vision market, especially for automotive vision. Most importantly, he was one of the cofounders of the skunkworks-like project that delivered EVE, the embedded vision engine described in the present talk. Branislav's favorite achievement is the Tetris-playing Lego Mindstorms robot that he created with his kids (search for "Tetris Robot" on YouTube). Branislav received his PhD from the University of Illinois at Chicago (1998) and is a Senior Member of IEEE (2008).