

Europass Curriculum Vitae



Personal information

First name(s) / Surname(s) **Gellért Sándor, Mátyus**
Affiliation and address Department of Computer Science, University of Toronto
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Nationality Hungarian
Gender male

Occupation

Postdoctoral Fellow: Research in Computer Vision and Machine Learning

Work experience

<p>Dates</p> <p>Occupation or position held</p> <p>Main activities and responsibilities</p>	<p>2016 - ongoing</p> <p>Postdoctoral Fellow</p> <p>Research in Computer Vision, Machine Learning and Remote Sensing. My research focuses on creating and enhancing road maps automatically from aerial images and ground images jointly. During my work I investigate and propose new methods, implement it in computer programs and publish the results in international conferences and journals.</p>
<p>Name and address of employer</p> <p>Type of business or sector</p>	<p>University of Toronto, Department of Computer Science. 6 King's College Road, Pratt building Toronto, Ontario, M5S 3G4, Canada</p> <p>Public University</p>
<p>Dates</p> <p>Occupation or position held</p> <p>Main activities and responsibilities</p>	<p>2011 - 2016</p> <p>Research Fellow</p> <p>Research and software development in the following topics and projects: Road layout parsing and vehicle detection on aerial images, image geolocalization and orthorectification without GPS and IMU and software development for data transmission from airplane to ground station in DLR project VABENE (Real time monitoring of natural disasters, mass events, and large traffic disasters). Automatic vessel detection on optical satellite images for the European Maritime Safety Agency.</p>
<p>Name and address of employer</p> <p>Type of business or sector</p>	<p>German Aerospace Center (DLR), The Remote Sensing Technology Institute, Photogrammetry and Image Analysis (PB)</p> <p>Public Research Organisation</p>
<p>Dates</p>	<p>2010-2011</p>

Occupation or position held Embedded software developer
 Main activities and responsibilities Development and maintenance of Ericsson Mini-Link (microwave radio link installed with embedded Linux).
 Name and address of employer Ericsson Hungary R&D
 Type of business or sector Research and Development department of a private company.

Dates 2008– 2010

Occupation or position held Student researcher, developer
 Main activities and responsibilities Research in image processing and computer vision. Multi target tracking on aerial videos. The algorithms were implemented in C++ and Matlab.
 Thesis: *Motion trajectory recognition in video image-sequences*
 Name and address of employer Computer and Automation Research Institute of the Hungarian Academy of Sciences (MTA SZTAKI), Budapest, Hungary
 Type of business or sector Public Research Institute

Education and training

Dates 2004 – 2010

Title of qualification awarded Diploma in Electrical Engineering
 Principal subjects/occupational skills covered Electrical Engineering, Embedded Systems, Signal Processing, Image Processing, Computer Vision
 Name and type of organisation providing education and training Budapest University of Technology (BME), Budapest, Hungary
 Level in national or international classification Hungarian equivalent to MSc.
 Grades average 4.92 (5.0 is the best)
 Prizes 2005: Physics competition of the faculty: 2nd prize.
 2006: „Electrical Signals and Systems” competition of the faculty: 3rd prize.
 2006-2007: "Scholarship of the Hungarian Republic" for excellent school achievements.

Dates 2013 - 2016

Title of qualification PhD degree with “Summa cum Laude”
 Name and type of organisation providing education and training University of Technology, Munich (TUM), Munich, Germany. Chair of Remote Sensing Technology.
 Supervisors Professor Richard Bamler, Dr. Friedrich Fraundorfer
 Topic Joint Information Augmentation of Road Maps, Aerial Imagery and Ground Images.

Dates 2014 July and August, 2015 February and March, 2015 August and September

Title of qualification Visiting PhD student
 Name and type of organisation providing education and training Department of Computer Science, University of Toronto
 Supervisors Professor Raquel Urtasun
 Topic Enhancing World Maps by Parsing Aerial and Ground Images

Self-assessment

European level (*)

English

German

Understanding		Speaking		Writing	
Listening	Reading	Spoken interaction	Spoken production		
C1	C1	C1	C1	C1	
C1	C1	C1	C1	C1	

Spanish	A2	A2	A2	A2	A2
	(*) <i>Common European Framework of Reference for Languages</i>				
Social skills and competences	Working in national and international teams and projects. Project planning.				
Organisational skills and competences	Guide for trainees, master thesis supervisor.				
Technical skills and competences	Basic electrical engineering skills: electrical and signal measuring, Verilog hardware description language: design on Xilinx FPGA-s.				
Computer skills and competences	User skills: MS Windows, MS Office, Linux, Latex. Developer skills: Software development on Windows, Linux, embedded Linux and embedded operation systems. Computer languages: C, C++, C#, Java, Python, Matlab, Bash script, Windows batch script. Computer Network knowledge and skills. Image processing, computer vision and machine learning knowledge and skills: object detection, tracking, image based localization, image registration, deep neural networks, graphical models, image segmentation, remote sensing images.				
Driving licence	Category B				

Additional information**Publications:**

Mattyus, Gellert and Fraundorfer, Friedrich: *Aerial image sequence geolocalization with road traffic as invariant feature*. Image and Vision Computing, 52 (8), pp. 218-229. 2016

Mattyus, Gellert; Wang, Shenlong; Fidler, Sanja and Urtasun, Raquel: *HD Maps: Fine-grained Road Segmentation by Parsing Ground and Aerial Images*. In: Conference on Computer Vision and Pattern Recognition (CVPR) 2016.

Mattyus, Gellert; Wang, Shenlong; Fidler, Sanja and Urtasun, Raquel: *Enhancing Road Maps by Parsing Aerial Images Around the World*. In: IEEE International Conference On Computer Vision (ICCV) 2015.

d'Angelo, Pablo; Mattyus, Gellert and Reinartz, Peter: *Skybox image and video product evaluation*. In International Journal of Image and Data Fusion, vol. 6, Nov. 2015

Liu, Kang; Mattyus, Gellert: *Fast Multiclass Vehicle Detection on Aerial Images*. In Geoscience and Remote Sensing Letters, IEEE, vol.12, no.9, pp.1938,1942, Sept. 2015

Mattyus, Gellert: *Near real-time automatic vessel detection on optical satellite images*. In: ISPRS Hannover Workshop, Volume XL-1/W1, pp. 233-237. ISPRS Archives. ISPRS Hannover Workshop 2013, 21 May - 24 May 2013, Hannover, Germany.

Mattyus, Gellert; Kurz, Franz; Rosenbaum, Dominik and Meynberg, Oliver: *A real-time optical airborne road traffic monitoring system*. In: Hungarian Association for Image Processing and Pattern Recognition, pp. 645-656. Hungarian Association for Image Processing and Pattern Recognition. KEPAF 2013, 29 Jan - 01 Feb 2013, Bakonybel, Hungary.

Mattyus, Gellert; Benedek, Csaba and Sziranyi, Tamas: *Multi target tracking on aerial videos*, ISPRS Istanbul Workshop 2010 on Modeling of optical airborne and spaceborne sensors, WG I/4, Oct. 11-13, IAPRS Vol. XXXVIII, part 1/W4.

Awards and Prizes:

IEEE Geoscience and Remote Sensing Society 2016 Letters Prize Paper Award (Paper of the year in a journal).

2006-2007: "Scholarship of the Hungarian Republic" for excellent school achievements.

2006: 3rd prize in the „Electrical Signals and Systems” competition of the Faculty of Electrical Engineering at the Budapest University of Technology.

2005: 2nd prize in the “Physics” competition of the Faculty of Electrical Engineering at the Budapest University of Technology.

Toronto, Canada, 24.09.2016