Final Program WIC Midwintermeeting on Deep Learning, 24 January 2018 – v7 final

Venue: Eindhoven University of Technology, Campus, Zwarte Doos, Filmzaal
Organizers: Prof.dr. Peter H.N. de With, Dr. Gijs Dubbelman (TU Eindhoven, VCA)

10.00 – 10.10 hrs. Opening WIC Chair Dr. Jos Weber (TU Delft) and Prof.dr. Peter HN de With (chair)

A. ACADEMIC SESSION
10.10 -- 10.50 hrs. Prof.dr. Marcel v Gerven (Radboud Nijmegen), "Deep Learning in Cognitive Science".

10.50 – 11.15 hrs. Coffee Break

11.15 – 11.55 hrs. Dr. Cees Snoek (Univ. of Amsterdam), "Video Recognition from a sentence",
11.55 – 12.35 hrs. Prof.dr. Theo Gevers (Univ. of Amsterdam), "Deep Learning in image and face intrinsics"

12.35 – 13.35 hrs. Lunch break

B. INDUSTRIAL SESSION and SURVEILLANCE APPLICATIONS
13.35 – 14.10 hrs. MSc. Guillaume Barat (nVidia Europe), "nVidia GPUs Deep Learning tools in Smart City cases"
14.10 – 14.35 hrs. Dr. Bas Boom (CycloMedia Technology, Zaltbommel, NL), "One method to infer them all?"
14.35 – 15.00 hrs. Dr. Rob Wijnhoven (ViNotion BV) and Matthijs Zwemer, "Traffic Analysis with Deep Learning"
15.00 – 15.25 hrs. Dr. Gijs Dubbelman & Panagiotis Meletis (TU Eindhoven, VCA), "Efficient street scene semantic segmentation for Autonomous Driving"

15.25 - 15.50 hrs. Coffee & Tea, drinks

C. HEALTHCARE SESSION
15.50 – 16.20 hrs. Dr. Javier Olivan Bescos (Philips Healthcare, Best, The Neherlands), "Deep Learning for interventional X-ray"
16.20 – 16.45 hrs. Dr. Sveta Zinger and Farhad G. Zanjani (TU Eindhoven, VCA), "Deep Learning for computational pathology"

16.45 -- 16.55 hrs. Closing Statements by Program chair and WIC chair

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Prof. Marcel van Gerven studied Cognitive Science at Radboud University. After completing his studies, he worked at the Max Planck Institute for Psycholinguistics and the Institute of Ophthalmology, UCL, London. He also worked in the software industry on artificial intelligence (AI) and educational applications. In 2007 he obtained his PhD at Radboud University on probabilistic models for cancer diagnosis, prognosis and treatment selection. This research was done in collaboration with the Netherlands Cancer Institute in Amsterdam and conducted in part at the UNED in Madrid. After completing his PhD, van Gerven worked as a postdoctoral researcher at the Institute for Computing and Information Sciences and the Donders Centre for Cognitive Neuroimaging. He created novel brain-computer interfacing paradigms and developed machine learning algorithms for neural data analysis. Subsequently, he was appointed assistant and associate professor at the AI department of the Faculty of Social Sciences. Van Gerven is principal investigator at the Donders Institute and was recently appointed head of the AI department at Radboud University.

Cees G.M. Snoek is a full professor in computer science at the University of Amsterdam, where he heads the Intelligent Sensory Information Systems Lab. He is also a director of the QUVA Lab, the joint research lab of Qualcomm and the University of Amsterdam on deep learning and computer vision. His research interests focus on video and image recognition. Cees is recipient of an NWO Veni award, a Fulbright Junior Scholarship, an NWO Vidi award, and the Netherlands Prize for ICT Research.

Theo Gevers is a Full Professor of Computer Vision at the University of Amsterdam, The Netherlands and a part-time Professor at the Computer Vision Center (UAB), Barcelona, Spain. At the University of Amsterdam he is a teaching director of the MSc of Artificial Intelligence. He was granted a VICI-award (for excellent researchers) from the Dutch Organisation for Scientific Research. He is the founder of Sightcorp and 3DUniversum (spin-offs of the University of Amsterdam) and Visual Tagging Services (spin-off of the Computer Vision Center, Barcelona). His main research interests are in the fundamentals of content-based image retrieval, colour image processing and computer vision specifically in the theoretical foundation of geometric and photometric invariants. He was co-chair of the Internet Imaging Conference (SPIE 2005, 2006), co-organizer of the First Int. Workshop on Image Databases and MultiMedia Search (1996), Int. Conf. Visual Information Systems (1999, 2005), ICME 2005, and the EU Conf. Colour in Graphics, Imaging, and Vision (CGIV, 2012). He was guest editor of the special issue on content-based image retrieval for IJCV 2004 and the special issue on Colour for CVIU 2004.

Guillaume BARAT: obtained his MSc degree from the University of Technology of Compiegne, France. He joined NVIDIA almost 4 years ago after 10 years in the High Performance Computing ecosystem. He is now in charge of the European Higher-Education & Research Customers at NVIDIA. The presentation will highlight some Smart city use cases and will remind some of the tools NVIDIA is providing to the DL community to accelerate their works.

Bas Boom graduated at the Free University of Amsterdam in Computer Science in 2005. He received his PhD at the University of Twente (2010) in Electrical Engineering, where his thesis was entitled "Face recognition's grand challenge: uncontrolled conditions under control". From 2011 until 2015 he worked as postdoc at University of Edinburgh on the "Fish4Knowledge" project. His main research is machine learning and computer vision on large scale image and video datasets using supercomputing facilities. He is author and co-author of over 30 scientific publications in journals and international conferences and organized 2 special issues and 2 scientific workshops. Currently within Cyclomedia, he is the expert

on computer vision and machine learning, where he created algorithms for automatic blurring of license plates and faces, for traffic sign recognition and building detection from aerial images.

Rob Wijnhoven graduated in electrical engineering from the Eindhoven University of Technology in 2004. From 2004 to 2009, he worked on object categorization for video surveillance at Bosch Security Systems, Eindhoven, The Netherlands. In 2009 he joined ViNotion, where he is currently responsible for the research in computer vision. In 2013 he obtained his Ph.D. degree in object categorization and detection. He is acting as CTO of ViNotion and his interests include object detection, tracking and classification and their integration in industrial applications.

Matthijs Zwemer received his BEng degree in electronics and technical information technology from Zeeland Polytechnical University of applied Sciences, the Netherlands, in 2008. In 2014 he graduated as MSc in electrical engineering from the Eindhoven University of Technology, the Netherlands, and joined ViNotion, where he works on object detection and classification for traffic analysis in computer vision. Since 2015, he is a Ph.D. candidate in the Video Coding and Architectures group at the Eindhoven University of Technology, the Netherlands.

Dr. Gijs Dubbelman is an assistant professor with the Eindhoven University of Technology and is heading the Mobile Perception Systems (MPS) research cluster of the VCA group, which focuses on signal processing technologies that allow mobile sensor platforms to perceive the world around them. Key research areas are: computer vision, pattern recognition, robotics, and sensor fusion. Important application domain of MPS are automotive and transportation. Dr. Gijs Dubbelman obtained his BSc. degree in Information and Communication Technology and his MSc. Degree cum laude in Artificial intelligence form the University of Amsterdam. In 2011 he obtained his PhD. from the University of Amsterdam on the topic of intrinsic statistical techniques for robust pose estimation.

Panagiotis Meletis is a full-time PhD researcher at the Mobile Perception Systems research cluster of the VCA group at Eindhoven University of Technology, currently working on the Cloud-LSVA project under EU Horizon 2020. His research aims at developing novel machine learning and computer vision techniques to incorporate perception and cognition into machines. His interests lie on the areas of deep learning and computer vision from big data, with applications in scene understanding, intelligent vehicles and drones, the internet of things and autonomous and cooperative driving. Panagiotis was born in Athens, Greece and studied at the National Technical University of Athens, receiving his Diploma in Electrical and Computer Engineering in November 2015.

Javier Oliván Bescós (1976) received his Physics degree from University of Zaragoza, Spain, in 1999. In 2004 he finished his PhD in Electrical Engineering at the University of Twente, The Netherlands, where he conducted research on medical visualization and image processing. Since 2004 he works at Philips Healthcare, where he participates in the design, development, and validation of algorithms and medical software to support doctors in imaging guided interventions. He has been part of several multidisciplinary projects acting as a liaison between clinicians, image processing and visualization scientists, and engineering teams.

Svitlana Zinger received the M.Sc. degree in computer science in 2000 from the Radiophysics faculty of the Dnepropetrovsk State University, Ukraine. She received the Ph.D. degree in 2004 from the Ecole Nationale Superieure des Telecommunications, Paris, in France. Her Ph.D. thesis was on interpolation and resampling of 3D data. In 2005 she was a postdoctoral fellow in the Multimedia and Multilingual Knowledge Engineering Laboratory of the French Atomic Agency, France, where she worked on creation

of large-scale image ontology for content based image retrieval. In 2006-2008 she was a postdoctoral researcher at the Center for Language and Cognition Groningen and an associated researcher at the Artificial Intelligence department in the University of Groningen, the Netherlands, working on information retrieval from handwritten documents. Since 2008 she is with the Video Coding and Architectures Research group at the Eindhoven University of Technology and has become assistant professor in healthcare imaging.

Farhad Ghazvinian Zanjani received his Master degree in biomedical engineering from Amirkabir University of Technology (Tehran Polytechnic), Tehran, Iran. Between 2007 and 2013, he worked as a researcher in an industrial company, active in computer vision domain. In 2016, he received a Master degree in computer science with honors, specialized in machine learning from Radboud University Nijmegen, The Netherlands. Since 2016, he is with the Video Coding and Architectures group at Technical University of Eindhoven and pursuing a PhD degree. He is involved in medical image analysis projects and in particular, computational pathology. His research interests include machine learning, artificial neural networks and image processing.

About the organizers of the WIC Midwinter meeting on Deep Learning

Peter H.N. de With (Fellow of IEEE) received his PhD degree from University of Technology Delft, The Netherlands. In 1984-1997, he worked for Philips Research Eindhoven on video compression and chaired a cluster for programmable TV architectures as senior TV Systems Architect. He was involved in creating the worldwide DV standard. In 1997-2000, he was full professor at the University of Mannheim, Germany, Computer Engineering, and chair of Digital Circuitry and Simulation. In 2000-2007, he was with LogicaCMG (now CGI) in Eindhoven as a principal consultant Technical SW and distinguished business consultant. He was also part-time professor at the TU/e, heading the chair on Video Coding and Architectures. In 2008-2010, he was VP Video (Analysis) Technology at Cyclomedia Technology. Since 2011, he is full professor at Eindhoven University of Technology chairing the VCA research group in the SPS section of Electrical Engineering and appointed scientific director Care and Cure Technology and theme leader Smart Diagnosis in the TU/e SA Health program. He has co-created an image analysis program with multiple regional and national hospitals for forms of oncology detection analysis, of which esophageal cancer detection projects became of breakthrough nature and of leading international quality. He is also international expert in video surveillance for safety and security and has been involved in multiple EU projects on video analysis, object and behavior recognition, and in surveillance projects with the Harbor of Rotterdam, Dutch Defense, Bosch Security Systems, TKH-Security, ViNotion, etc. He is advisory board member of DITSS, the Gauss Foundation, and was R&D advisor to multiple companies. He is Fellow of the IEEE, has (co-)authored over 350 papers on video coding, analysis, architectures, 3D processing and their realization. He is (co-) recipient of multiple Chester Sall papers awards of the IEEE ICCE, VCIP and Transactions papers and a Eurasip Signal Proc. Award and a 15-year ICCE Service Award. Mr. De With is honorary member of the WIC and has held all board positions of the WIC board and is also board member of the IEEE Benelux Chapter on IT.

Dr. Gijs Dubbelman is an assistant professor with the Eindhoven University of Technology and is heading the Mobile Perception Systems (MPS) research cluster of the VCA group, which focuses on signal processing technologies that allow mobile sensor platforms to perceive the world around them. Key research areas are: computer vision, pattern recognition, robotics, and sensor fusion. Important application domain of MPS are automotive and transportation. Dr. Gijs Dubbelman obtained his BSc. degree in Information and Communication Technology and his MSc. Degree cum laude in Artificial intelligence form the University of Amsterdam. In 2011 he obtained his PhD. from the University of Amsterdam on the topic of intrinsic statistical techniques for robust pose estimation. He was also visiting researcher at the Carnegie Mellon Institute.