Prof. Dr. Wesley De Neve

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Short Biography

Wesley De Neve received the M.Sc. degree in Computer Science from Ghent University in 2002. He did his master's thesis on the design and implementation of a high-level application programming interface for functional metadata on top of Apple's QuickTime multimedia framework. After obtaining the M.Sc. degree, he received a scholarship from the Special Research Fund of Ghent University, making it possible to start Ph.D. studies at the Multimedia Lab research group of Ghent University and the Multimedia Technologies department of iMinds, the institute for ICT innovation and incubation in Flanders. In 2007, he obtained his Ph.D. degree in Computer Science Engineering with a dissertation on format-independent adaptation of multimedia content, under the supervision of Prof. Rik Van de Walle. During his Ph.D. studies, he also participated in the standardization activities of the Moving Picture Experts Group (MPEG), contributing to the MPEG-21 Digital Item Adaptation framework.

In 2007, after his Ph.D. studies, he received a Brain Korea 21 (BK21) fellowship from the South Korean government to work at the Image and Video Systems Lab of Professor Yong Man Ro, first at the Information and Communications University (ICU), and later on at the Korea Advanced Institute of Science and Technology (KAIST), shifting his research focus from multimedia content representation to multimedia content analysis. In 2011, he re-joined the Multimedia Lab at Ghent University - iMinds as a postdoctoral fellow, while still maintaining an adjunct appointment with KAIST. At Multimedia Lab, he started the Social and Visual Intelligence (SaVI) research cluster, which focused on the use of large-scale machine learning for the purpose of social media analysis and visual content understanding. In October 2015, he became an Associate Professor with the Faculty of Engineering and Architecture of Ghent University.

Since September 2014, Wesley De Neve is also working as a Professor at the Ghent University Global Campus (GUGC) in South Korea, co-founding the Center for Biotech Data Science, together with Prof. Shodhan Rao and Prof. Arnout Van Messem. At GUGC, he is responsible for teaching two computer science courses: Informatics, which is a course on scientific problem solving using Python and UNIX, and Bioinformatics, which is an introductory course to algorithms sitting at the intersection of biology and computer science, including shallow and deep machine learning techniques.

At GUGC, Wesley De Neve is also coordinating research activities in the field of biotech data science, addressing short- and long-term challenges related to the representation and analysis of biomedical images and biological sequences. In this context, he is targeting use cases such as parasite and microplastics detection in microscopy images, as well as structural and functional annotation of DNA and protein sequences, mainly through the use of trustworthy and interpretable (deep) machine learning techniques.

Research Areas

· Machine learning
· Deep learning
· Structural and functional annotation
· Biomedical image analysis

Education

(2000) Ghent University, Belgium (BSc)

(2002) Ghent University, Belgium (MSc)

(2007) Ghent University, Belgium (PhD)

Experience

(2007~2008) Post-doctoral researcher, Ghent University, Belgium

(2007~2008) Post-doctoral researcher, ICU, Korea

(2008~2009) Research assistant professor, ICU, Korea

(2009~2012) Research assistant professor, KAIST, Korea

(2011~2015) Post-doctoral researcher, Ghent University, Belgium

(2012~present) Adjunct professor, KAIST, Korea

(2014~present) Professor, GUGC, Korea

(2015~present) Associate professor, Ghent University, Belgium

Top 5 Selected Publications

Utku Özbulak, Arnout Van Messem, and Wesley De Neve, "Impact of Adversarial Examples on Deep Learning Models for Biomedical Image Segmentation," in Medical Image Computing and Computer Assisted Intervention, MICCAI 2019, Shenzhen, PR China, vol. 11765, pp. 300–308, 2019.

Jasper Zuallaert, Frederic Godin, Mijung Kim, Arne Soete, Yvan Saeys, and Wesley De Neve, "SpliceRover : Interpretable Convolutional Neural Networks for Improved Splice Site Prediction," Bioinformatics, vol. 34, no. 24, pp. 4180–4188, 2018.

Tom Paridaens, Glenn Van Wallendael, Wesley De Neve, and Peter Lambert, "AFRESh: An Adaptive Framework for Compression of Reads and Assembled Sequences with Random Access Functionality," Bioinformatics, vol. 33, no. 10, pp. 1464–1472, 2017.

Jaeyoung Choi, Wesley De Neve, Konstantinos N. Plataniotis, Yong Man Ro. Collaborative Face Recognition for Improved Face Annotation in Personal Photo Collections Shared on Online Social Networks. IEEE Transactions on Multimedia. Vol. 13(1). February 2011. pp. 14-28.

Sihyoung Lee, Wesley De Neve, Konstantinos N. Plataniotis, Yong Man Ro. MAP-based Image Tag Recommendation using a Visual Folksonomy. Elsevier Pattern Recognition Letters. Vol. 31(9). July 2010. pp. 976-982.

Full Bibliography URL Link

https://scholar.google.com/citations?user=VpjWb7wAAAAJ
https://biblio.ugent.be/person/F67AC43A-F0ED-11E1-A9DE-61C894A0A6B4

Patents / Projects

SECRiFY: A New Tool for Studying Eukaryotic Protein Secretion. FWO Scholarship for Hannah Eeckhaut. September 2019 – August 2023. Role: Co-promoter.

Deep Learning for Functional Genome Annotation. Bilateral Project Funded by BASF. February 2019 – July 2019. Role: Co-principal Investigator.

Forging Connections between Machine Learning Techniques and Strongly Correlated Physical Systems. FWO Scholarship for Tom Vieijra. September 2018 – August 2022. Role: Co-promoter.

Dodona: An Intelligent Tutoring System for Programming Assignments. Interfaculty Project on Educational Innovation. January 2018 – December 2019. Role: Co-promoter

"FREME: Open Framework of E-Services for Multilingual and Semantic Enrichment of Digital Content". European Project (Horizon 2020). February 2015 – January 2017. Role: Co-principal Investigator for iMinds.

"STEAMER: Smart Text Enrichment Algorithms for Media Retrieval applications". iMinds/MiX. Belgium. July 2014 – December 2015. Role: Work Package Leader.

"E-Strips". iMinds/MiX. Belgium. November 2013 – October 2014. Role: Work Package Leader.

"Image Tag Refinement by Exploiting Collective Knowledge in a Refined Image Folksonomy". National Research Fund (NRF). Republic of Korea. May 2010 – April 2012. Role: Co-principal Investigator.

Yong Man Ro, Hyun-seok Min, Wesley De Neve. Method and apparatus for video copy detection. Korean patent. Date of application: 2010.03.22. Application number: 10-2010-0025140. Approval number: 10-1141596. Date of approval: 2012-04-24.

Research Fields of Interest

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Organizations of Interest
visiting, research collaboration, networking, etc.

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