KU LEUVEN

OMFS
IMPATH

Yearbook 2020

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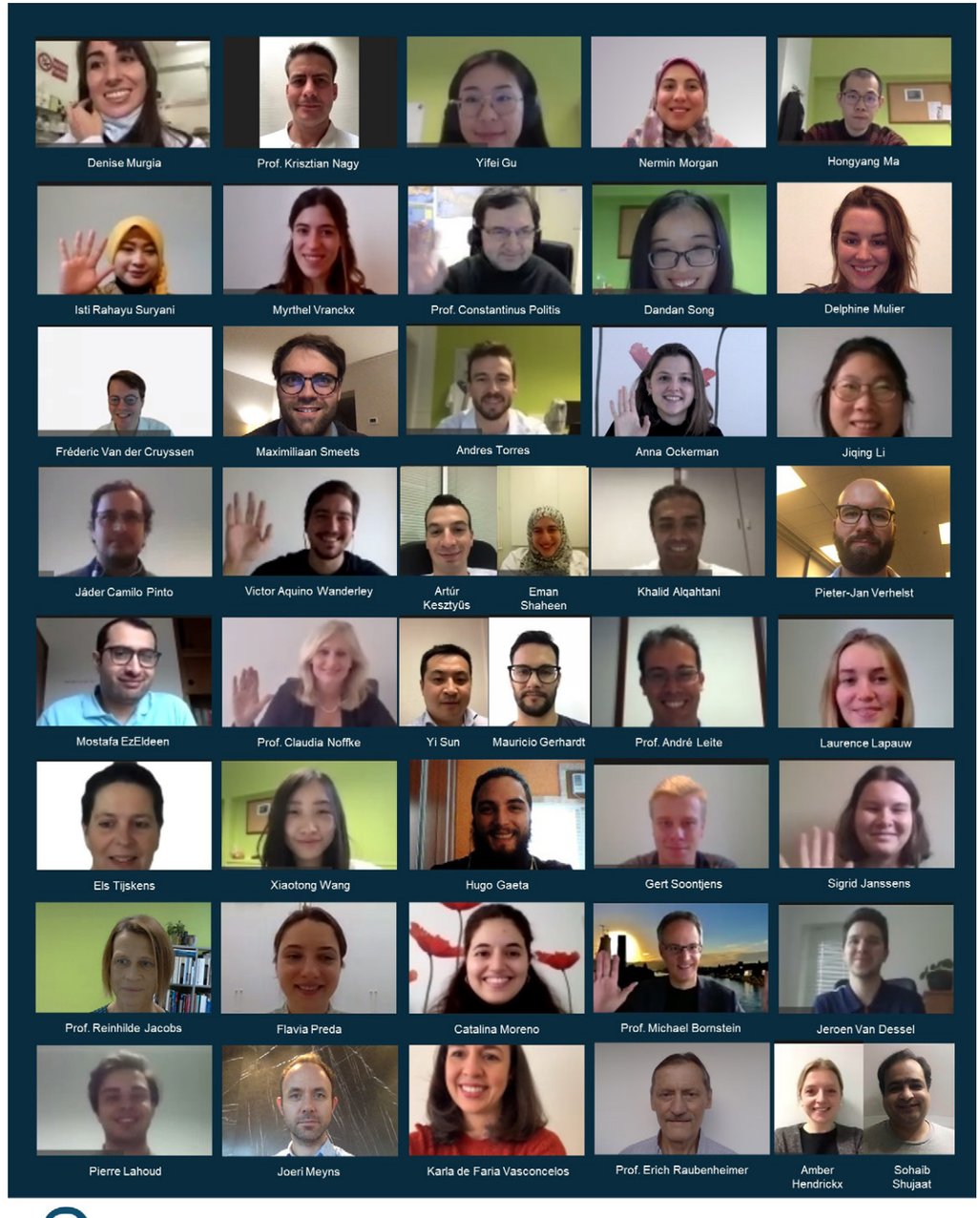
Preface

OMFS-IMPATH research group has been established 8 years ago. The cover of the yearbook will retain the look and feel of the previous years. You could mistakenly get the impression that 2020 was a year like any other. Nothing was further from the truth. Our international researchers were tied up in Belgium with a University in lock-down mode, where quarantine is a guarantee for solitary confinement. Zoom may be an escape, but it is not a good idea for a vibrant research environment where mutual contact provides the necessary 'serendipity'. The suddenly changed economic context for the university, government and business world has made fundraising considerably more difficult in a country where research sponsors are scarce and alumni are not in the habit of supporting research at Alma Mater. Nevertheless, the retrospective shows that some projects have passed the research phase and made their entrance into clinical reality (V3 neurography, M3 guidelines).

GDPR guidelines and Research Integrity Codes impose ever more restrictions and obstacles and make the European research context less competitive with continents where research integrity has a different content. After the disruptive nature of 2020, an economic recovery in 2021 is desirable and a restoration of human physical contacts is necessary, certainly in research groups. Entrusting thoughts to each other in a personal conversation is simply much richer than sound and video lines over the internet.

2020 will also be the year that will be remembered as the year where the last plaster casts were manufactured in the OMFS department. In the disruptive mode of 2020, the complete transition to a fully digital environment for the preparation and planning of orthognathic surgery was realized, from intra-oral scanning towards in-house design and point-of-care printing. This evolution also benefited oncological surgery. Young researchers are pleased to see that successive efforts ultimately improve the patient's fate.



OMFS IMPATH

www.omfsimpath.be

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Team

A. STAFF

B. RESEARCHERS

C. ADMINISTRATIVE COORDINATOR

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Team

The OMFS-IMPATH research group is an international multidisciplinary team of 40 MSc, PhD and postdoctoral researchers and clinicians. Research is ultimately aimed to develop and validate surgical tools and image-based solutions to advance in oromaxillofacial surgery, as such to strive for an optimized treatment outcome while minimizing peri- and postsurgical risks.

Research is focused on image-based development of surgical aids with validation of their clinical applicability. This research is subdivided in different lines including 1) optimized image acquisition with the least radiation dose; 2) presurgical planning via artificial intelligence; 3) image-based development of individualized surgical tools; 4) advanced applications for patient specific implants via 3D printing and bioprinting; 5) maximized visualization of the trigeminal nerve pathway to minimize risks for nerve damage and to create opportunities for advanced diagnosis and potential treatment.

The team produces high quality research output, with 7 to 8 peer-reviewed publications a month. For updates on research of the omfsimpath team, see www.omfsimpath.be.

DEPARTMENT OF IMAGING & PATHOLOGY - HEAD: PROF. TANIA ROSKAMS

Biomedical MRI	Uwe Himmelreich
Forensic Biomedical Sciences	Wim Van de Voorde
Medical Physics & Quality Assessment	Hilde Bosmans
Nuclear Medicine & Molecular Imaging	Koen Van Laere
Radiology	Raymond Oyen
Theragnostic Laboratory	Yicheng Ni
Translational Cell & Tissue Research	Tania Roskams
Translational MRI	Vincent Vandecaveye
OMFS-IMPATH	**Constantinus Politis** www.omfsimpath.be

Tania ROSKAMS

Tania Roskams obtained her medical degree in 1989 at the University of Leuven. She specialized in Pathology (University of Leuven) and obtained her PhD in liver pathology in Leuven and Oklahoma University, USA. In 1996 she became head of the Liver Research Unit, in 2002 of the Research group Translational Research and Pathology and in 2015 Head of the Departement of Imaging & Pathology. She was nominated Professor in pathology in 2002. From 2007-2009 she was visiting professor at the University of Utrecht. In the clinical department she is responsible for hepatobiliary, pancreas and gastrointestinal pathology. Her main interest is liver research with special emphasis on liver progenitor cells and their role in regeneration and carcinogenesis.

Peter VERMAELEN

Peter Vermaelen obtained his degree in Medical Laboratory Technology in 1994 and gained experience in different clinical and research topics. In 2000, he joined the pre-clinical unit of the Nuclear Medicine & Molecular Imaging research group and was co-founder of the Molecular Small Animal Imaging Center (MoSAIC). Since 2012, he is as department manager responsible for the financial and personnel administration of the Department of Imaging & Pathology.

A. STAFF

Constantinus POLITIS

Constantinus Politis is Oral and Maxillofacial Surgeon. He is currently Full Professor and Chairperson of the Department of Oral and Maxillofacial Surgery at Leuven University Hospitals, KULeuven, Belgium. He is an invited Lecturer at the EHSAL in Brussels. He graduated at the Catholic University of Leuven in medicine (MD, summa cum laude), in dentistry (DDS, magna cum laude). He specialized in oral and maxillofacial surgery at the Catholic University of Leuven. Postgraduate training was additionally followed in Arnhem (Stoelinga), Aachen (Koberg), Copenhagen (Pindborg), Göteborg (Bränemark) and San Francisco (Marx). He holds an honorary professorship at the Fourth Medical Military University of Xi'an, China. He also holds a master degree in management (MM) from the Applied Economic Scienes at the University of Hasselt and a master degree in Hospital Management (MHM) from the Catholic University of Leuven. He became a recognition as medical specialist in management of health care data and is now member of the National Council of Hospital Facilities. He is Vice-President of the Professional Union of Belgian Oral and Maxillofacial Surgeons. He is acknowledged trainer of OMFS trainees. He defended his doctor's thesis on the subject of complications of orthognathic surgery (PhD). His professional field of intrest is in orthognathic and orthodontic surgery and trigeminal nerve dysfunction. Clinical research projects include prevention and repair of iatrogenic trigeminal nerve injury, transplantation of teeth and orthognathic surgery. He has been granted membership of the Belgian Royal Academy of Medicine.
Researchgate: https://www.researchgate.net/profile/Constantinus_Politis2

Reinhilde JACOBS

Reinhilde Jacobs is dentist, Doctor in Dental Sciences (PhD University of Leuven), periodontologist (KU Leuven) and Master in Dental Radiology (University of London). She is full professor at the University of Leuven and visiting professor at Karolinksa Institutet, Stockholm, Sweden and the Dalian Medical University in China. R. Jacobs is heading the omfs impath research group of the KU Leuven (omfsimpath.be) and the clinical center of dentomaxillofacial radiology (UZleuven). She is Secretary General of the International Association of DentoMaxilloFacial Radiology. She is section editor of 5 journals (Journal of Dentistry, Clinical Oral Investigations, International Journal of Oral Implantology, European Journal of Radiology and Oral Radiology). She has received the D Collen Research Travel Award (1994), a postdoctoral fellowship of the European Commission (1994-95), the IADR Young Investigators Award (1998) and the Belgian Joachim Award in Odontostomatology (1999). In 2013, she received a Dr Honoris Causa at the "Iuliu Hatieganu" University of Medicine and Pharmacy in Cluj-Napoca. She is involved in many multidisciplinary and interuniversity research collaborations, with a specific focus on imaging research, artificial intelligence and bioprinting. She has been actively participating in 5 European projects and is (co-)author of 5 books and more than 450 publications in peer-reviewed journals besides multiple invited lectures and publications in other journals or books. Scopus (2020): h:64

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Team

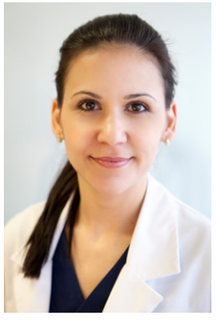
Paul LEGRAND

Prof. dr. Paul Legrand studied medicine at the KU Leuven and graduated as medical doctor in 1982. Afterwards he studied dentistry and graduated in 1984. He was trained as an oral- and maxillofacial surgeon at the KU Leuven and at the Rheinisch-Westfälische Technische Hochschule in Aachen. In 1988 he became a certified oral and maxillofacial surgeon. In October 1988, he founded the oral and maxillofacial surgery department in the Maria Hospital in Overpelt, where he was medical head of OMFS from 1988 to 2017. He is a certified OMFS instructor and a member of the OMFS accreditation committee. Furthermore, he is on the board of the association of Flemish oral and maxillofacial surgeons (VVMKA) and the VBS MKA.
Since 2011 professor Legrand was part-time affiliated with the UZ Leuven and in 2016 he was appointed guest lecturer at the KU Leuven. Since November 2018, professor Legrand is fulltime staff member at OMFS UZ Leuven.
In Belgium, professor Legrand is a pioneer in intravenous sedation in the OMFS department and he has made this is most important area of interest. His principal activities are dento-alveolar surgery, implantology and further development of intravenous sedation techniques.

Titiaan DORMAAR

Titiaan Dormaar is a Cranio-Maxillofacial and Cleft surgeon currently working in the department of oral and maxillofacial surgery at UZ Leuven. He obtained his MD from Maastricht University, where he was involved in a research project focusing on liquid ventilation in neonatal respiratory distress syndrome. He obtained his DDS from the Radboud University Nijmegen (the Netherlands). Before continuing his specialist training he spent 2 years in the UK, where he worked as a senior house officer in ENT and OMFS in Guildford and London. He completed his OMFS training at Utrecht University (the Netherlands). During his training in Utrecht he was the lead surgeon in an animal model research project on alveolar bone grafting with beta-TCP bone substitute in alveolar clefts. Following this he did a 3 year Fellowship in Cleft Surgery at Guy's and St Thomas' Hospital, London (UK), whilst he also provided regular on-call duties at King's College Hospital, a tertiary trauma centre.

Ruxandra Gabriela COROPCIUC



Ruxandra Gabriela Coropciuc graduated as double qualified (MD, DDS) Oral and Maxillofacial Surgeon from the University of Medicine and Pharmacy Carol Davila, Bucharest in 2013. She was trained in the Clinical Hospital or Oral and Maxillofacial Surgery, Bucharest and at Leuven University Hospitals. She joined the Department of Maxillofacial Surgery at the UZ Leuven Belgium in 2013. Her PhD research is focused on bisphosphonate-related osteonecrosis of the jaw bone. Her clinical field of interest is in oral implantology, salivary gland pathology and head and neck oncology and reconstruction. Being multilingually talented with backgrounds in Canada, Romania and Belgium allow her to easily address patients in Dutch, English, French or Romanian.

Michel BILA

Dr. Michel Bila graduated from Antwerp University in 2009 as Medical Doctor and graduated from Leuven University in 2012 as Master in Dentistry. He obtained his specialty degree in Oral and Maxillofacial Surgery in 2016. He further specialized in Head and Neck Oncology at the Maxillofacial and Head and Neck Service at University College London Hospitals. He is Clinical Staff Member in Oral and Maxillofacial Surgery at UZ Leuven. His clinical focus is Head and Neck Oncology and Reconstruction. His PhD research covers the use of immunotherapy in head and neck squamous cell carcinoma (HNSCC).

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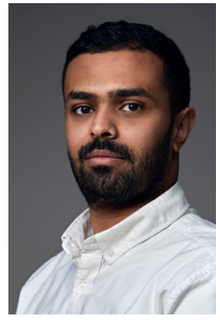
Team

Robin WILLAERT

Dr. Robin Willaert finished his medical and dental studies at the Faculty of Medicine in Leuven University with the highest distinction. He successfully obtained his Board Certification in Oral and Maxillofacial Surgery in 2018. He is Clinical Staff Member in Oral and Maxillofacial Surgery at UZ Leuven. His clinical focus is Head and Neck Oncology and maxillofacial reconstruction using 3D technology. His PhD research covers orbital imaging and reconstruction surgery (PhD January 2021). He further specializes in Head and Neck Oncology in different centres in Australia, Scotland, South-Africa and different Asian Centers.

B. RESEARCHERS

Khalid Ayidh ALQAHTANI



Khalid Ayidh Alqahtani was born on 21 August, 1992. He achieved his Bachelor of Dental Surgery (BDS) degree from Prince Sattam Bin Abdulaziz University, Al-Kharj, Saudi Arabia in the year 2016. He worked as a demonstrator in the department of oral and maxillofacial radiology at Prince Sattam Bin Abdulaziz University from the year 2016 to 2018. He has obtained a postgraduate diploma in advanced medical imaging and is currently PhD student under the supervision of Prof. dr. Reinhilde Jacobs at the OMFS-IMPATH research group, KU Leuven. His main focus of research involves three-dimensional assessment of root resorption in orthognathic surgery.

Oliver DA COSTA SENIOR

Oliver da Costa Senior is a PhD candidate at the OMFS-IMPATH research group at the University of Leuven under promotorship of Prof. dr. Constantinus Politis, Prof. dr. Reinhilde Jacobs and Dr. Ir. Eman Shaheen. He graduated at the Catholic University of Leuven in Medicine in June 2018. Currently, he is an Oral and Maxillofacial trainee at the department of Oral and Maxillofacial Surgery at the University Hospitals of Leuven. His research is focused on the three-dimensional planning, follow-up and complications of orthognathic surgery with special interest in Segmental Maxillary Osteotomy and Surgical Assisted Rapid Palatal Expansion (SARPE).

Karla de Faria VASCONCELOS

Karla de Faria Vasconcelos is dentist (2006), Doctor in Dental Radiology (2015; PhD at State University of Campinas - Brazil, with one year of external internship at KU Leuven - Belgium), Master in Dentistry (2010; Federal University of Goiás - Brazil) and Specialist in Oral Radiology (2012; University of Campinas). She has worked, as Radiologist, in private radiology clinics, and as a Collaborator Professor of Graduate Program of Dentistry from the Federal University of Goias at the Discipline of “Imaging Diagnostic”. She performed postdoctoral research at Dental Radiology Department, Piracicaba, Brazil (Prof. dr. Francisco Haiter-Neto) and OMFS-IMPATH research group, Leuven, Belgium (Prof. dr. Reinhilde Jacobs), with a FAPESP fellowship (2015-2017). In 2018 she obtained the diploma of Postgraduate Studies in Advanced Medical Imaging at KU Leuven, Leuven, Belgium. At present she is postdoctoral researcher in the OMFS-IMPATH Research Group, under the supervision of Prof. dr. Reinhilde Jacobs and Prof. dr. Politis Constantinus. She has been involved in interuniversity research collaborations, with a specific focus on digital radiography, cone beam computed tomography, micro and nano-CT.

Mostafa EZELDEEN

Mostafa EzEldeen was born on July 19th, 1984 in Mansoura, Egypt. He obtained his Bachelor of Dental Medicine and Surgery (2007) from Mansoura University, Egypt and Master in Dentistry (2013), Summa cum laude, at the KU Leuven, Belgium. Further, he obtained a specialization in Paediatric Dentistry and Special Dental care (2012), at the KU Leuven under the guidance of Prof. dr. Frans Vinckier and Prof. dr. Dominique Declerck. In 2013, he obtained the diploma of Postgraduate studies in Advanced Medical Imaging at the KU Leuven under the guidance of Prof. dr. Reinhilde Jacobs. He works as a dentist in private practice and UZ Leuven (department of Paediatric Dentistry and Special Dental Care). Currently he is a PhD candidate (OMFS-IMPATH research group, KU Leuven, Belgium) with Prof. dr. Reinhilde Jacobs as his promoter. His research topics are; assessment of the patterns of healing in teeth and bone after regenerative processes using Cone Beam Computed Tomography, developing of reliable teeth segmentation methods, bio-3D printing and chemokine-mediated regeneration in the oral and maxillofacial region.

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Team

Koenraad GRISAR

Koenraad Grisar is a PhD candidate at the OMFS-IMPATH research group (Department Imaging and Pathology, Faculty Medicine, Catholic University Leuven), where he studies the autogenous transplantation of maxillary canines. He received his Medical Degree from the Leuven University in 2013. He graduated in June 2016 as Master of Science in Dentistry at Leuven University with a Master’s Thesis in early dental implant survival and risk factors. He has had several articles published in internationally renowned journals on topics related to oral and maxillofacial surgery (Human papillomavirus and head and neck cancers; Osteoradionecrosis and medication-related osteonecrosis of the jaw, Dental implantology). Currently he is an oral and maxillofacial trainee at the University Hospital Leuven.

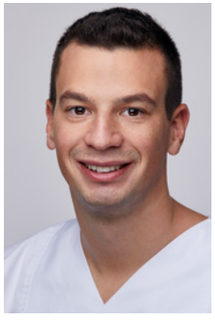
Yifei GU

Gu Yifei was born on April 17th, 1992. She achieved her degree in Bachelor of Medicine from West China college of Stomatology, Sichuan University, Chengdu, Sichuan, China (2010 - 2015). After that, she continued to obtain her degree in Master of Dental Medicine, majored in oral implantation, from West China college of Stomatology, Sichuan University, Chengdu, Sichuan, China, under the guidance of Professor Mo Anchun (2015-2018). During her Masters, she worked on the impact of non-steroid anti-inflammatory drugs on implant osseointegration, as well as the digital workflow in implant dentistry. She started working as a PhD candidate (OMFS-IMPATH research group, KU Leuven) from 2018, with Prof. dr. Constantinus Politis and Prof. dr. Reinhilde Jacobs as her promotors. Her research topic for PhD is related to tissue engineering for bone defect reconstruction by using biomimetic calcium phosphate/BMP-2 coated 3D printed implants.

Pierre LAHOUD

Pierre Lahoud was born on June 7th 1996 in Amchit, Lebanon. In July 2019, he obtained his Bachelor Degree in Dental Medicine and Surgery from the Lebanese University, Beirut, Lebanon. In 2018, he did an internship (Erasmus +) in clinical training at the Catholic University of Louvain in Saint-Luc's Hospital, Brussels, Belgium. Between 2016 and 2018, he volunteered as an Emergency Medical Technician (EMT) with the Red Cross, Byblos, Lebanon. He is currently (2019-2020) doing Postgraduate Studies in Advanced Medical Imaging at KU Leuven, combined with research work at the OMFS-IMPATH research group, focusing on artificial intelligence based segmentation for tooth auto-transplantation.

Artúr KESZTYÜS



Artúr Kesztyüs graduated as a dentist in 2017 at the Semmelweis University Budapest, Hungary. Since that he has been working as a Phd student at the First Department of Pediatrics Semmelweis University and a part-time dentist. In January 2019 he started a joint degree programme under the supervision of Prof. dr. Reinhilde Jacobs (OMFS-IMPATH research group, KU Leuven) and Dr. Krisztián Nagy (First Department of Pediatrics, Semmelweis University Budapest) with the main research interest in three-dimensional cleft palate evalutation, surgical planning and follow-up supported by AI technology.

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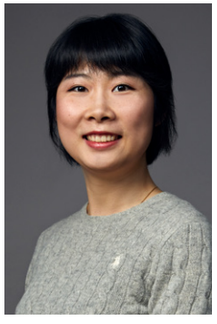
Team

Jiqing LI



Jiqing Li was born on April 15th, 1991. She achieved her degree in Bachelor of Dental Medicine from School of Stomatology, Shandong University, Jinan, China (2009-2014). She obtained her Master of Dental Medicine degree in Oral and Maxillofacial Surgery from West China College of Stomatology, Sichuan University, Chengdu, China, under the guidance of Professor Jihua Li and Professor Jing Hu (2014-2017). During her Masters, she worked on the effect of hyaluronidase on skin necrosis caused by hyaluronic acid. After her graduation, she worked as a general dentist at West China Hospital of Stomatology, Chengdu, China (2017-2018). Currently, she is a PhD candidate in OMFS-IMPATH research group, KU Leuven, with Prof. dr. Reinhilde Jacobs as her promoter. She is studying the effect of systemic diseases on patients undergoing orthognathic surgery.

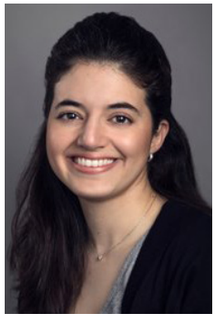
Hongyang MA

Hongyang Ma obtained his Bachelor of Dental Medicine and Surgery from Harbin Medical University and Master degree of Oral and Maxillofacial Surgery in Department of Oral and Cranio-maxillofacial Surgery, Ninth People's Hospital, Shanghai Jiao Tong University School of Medicine. Currently, he is a PhD candidate (OMFS-IMPATH research group, KU Leuven, Belgium) with Prof. dr. Reinhilde Jacobs as his promoter and Prof. dr. Constantinus Politis as his co-promoter. He studies the assessment of the long-term follow-up of patients performed with oral oncologic reconstruction surgery.

Joeri MEYNS

Dr. Joeri Meyns has a degree as a Medical doctor, Dentist and Maxillofacial surgeon. After obtaining his degree as a maxillofacial surgeon in 2011 he was a staff member at the Academic Hospital Maastricht (MUMC) for almost 4 years, where he further specialised in oral oncology and reconstructive surgery. He is Medical Head of the department of Oral and Maxillofacial Surgery at Ziekenhuis Oost-Limburg (ZOL) in Genk. His main speciality is orthognathic surgery and oncology. His PhD research is growth modification of the face in children.

Catalina Moreno RABIE



Catalina Moreno Rabie was born in Concepción, Chile, in 1992. She studied her bachelor and master degree in Dentistry at the University of los Andes in Chile between 2011 and 2016. During her last year of Dentistry, she did an internship in Clinical and Research training at KU Leuven, where she studied the mandibular bone on CBCT. She continued doing postgraduate studies in Advanced Medical Imaging (2018-2019) and has meanwhile started a PhD project on osteonecrosis the jaw bone. She is currently (2018-2019) doing Postgraduate Studies in Advanced Medical Imaging at KU Leuven, combined with research work at the OMFS-IMPATH research group.

Nermin MORGAN

Nermin Morgan was born on September 20th, 1990. She obtained her degree in Bachelor of Dental Surgery (B.D.S) from Faculty of Dentistry, Mansoura University, Egypt (2007-2012). After her graduation she worked there as a teaching assistant in the department of Oral radiology and Diagnostic sciences (2013-2018). Meanwhile She has awarded her master's degree of Oral Diagnosis and Radiology (2017). During the same year she became a radiology specialist at Ministry of health, Cairo, Egypt. Her research work has focused on Cone Beam CT (CBCT), and its different clinical applications in maxillofacial region. Currently, she is a PhD Candidate in OMFS-IMPATH research group, KU Leuven, with Prof. dr. Reinhilde Jacobs as her promoter.

Delphine MULIER

Delphine Mulier is a PhD candidate at the OMFS-IMPATH-research group at the University of Leuven under promotorship of Prof. dr. Reinhilde Jacobs, Prof. Dr. Constantinus Politis, Prof. dr. Kris Vanhaecht and Dr. Ir. Eman Shaheen. She graduated at the Catholic University of Leuven in Medicine in June 2018. Currently, she is an Oral and Maxillofacial trainee at the department of Oral and Maxillofacial Surgery at the University Hospitals of Leuven. Her research is focused on the evaluation of the quality of care for orthognathic surgery.

Laura NICOLIELO

Laura Nicolielo is a Dental Surgeon (University of São Paulo, Brazil) (2009), Postgraduate in Oral Surgery (University of São Paulo, Brazil) (2010), Master in Applied Dental Sciences with focus in Stomatology and Radiology (University of São Paulo, Brazil) (2013), Implantologist (Opem Institute, Bauru, Brazil) (2013) and Postgraduate in Advanced Medical Imaging (KU Leuven, Belgium) (2014). In October 2013, she was granted by the Brazilian Government to start the PhD in the OMFS-IMPATH research group under supervision of Prof. dr. Reinhilde Jacobs. Her main research topic is validation of 3D imaging modalities in the assessment of neurovascular structures of the jaw bones, bone quality and quantity and condylar resorption after orthognathic surgery.

Anna OCKERMAN

Anna Ockerman is a PhD candidate at the OMFS-IMPATH research group in cooperation with the Department of Cardiovascular Sciences. She performs research in the domain of antithrombotics in the oral and maxillofacial surgery and dentistry. More specifically, she investigates how to reduce bleeding complications after dental extractions in patients on non-vitamin K oral anticoagulants (NOACs) and what the influence of antithrombotic drugs is on the characteristics of Leukocyte Platelet Rich Fibrin (L-PRF) membranes. Her promotors are Prof. dr. Reinhilde Jacobs, Prof. dr. Constantinus Politis (Department Imaging and Pathology, KU Leuven) and Prof. dr. Peter Verhamme (Department of Cardiovascular Sciences, KU Leuven). Anna graduated in June 2017 as MSc in Biomedical Sciences (KU Leuven). Her Master's Thesis 'The eruption potential of wisdom teeth predicted by tooth inclination in a premature development stage', was awarded with the Best Master's Thesis Biomedical Sciences 2017, third place.

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Team

Flavia PREDA

Flavia Preda has graduated as Dentist (2012) and as Orthodontics Specialist (2015) at the University of Medicine and Pharmacy Carol Davila, Bukarest-Romania. Since then, she has practiced orthodontics in private dental clinics in both Romania and Belgium. Since 2019 she is a visiting Orthodontics Consultant in the cleft facility at Marie S. Curie Children's Hospital in Bukarest-Romania. Currently, she is a part-time PhD student in the OMFS-IMPATH research group at KU Leuven under the supervision of Prof. dr. Reinhilde Jacobs with the main research interest 3D supported and AI enhanced diagnosis and treatment planning for cleft patients.

Mehdi SALAR AMOLI

Mehdi is a PhD candidate at OMFS-IMPATH in collaboration with Faculty of Engineering Technology working under supervision of Prof. Veerle Bloemen and Prof. Reinhilde Jacobs. He studied biomaterials and tissue engineering for bachelor's at Amirkabir University of Technology in Iran working on multiphasic chitosan scaffolds for cartilage regeneration. He obtained his master's degree at Imperial College London in biomaterials and tissue engineering and worked under supervision of Prof. Molly Stevens and Dr. Ioanna Mylonaki on developing non-viral methods for nucleic acid delivery to the cells. He is currently working on development of methods for regeneration of dentin-pulp region through bio printing cell encapsulated materials.

Eman SHAHEEN

Eman (Emmy) Shaheen was born on July 12th, 1982 in Giza, Egypt. She graduated with honor from the faculty of Computer Sciences and Information Technology (2003), Cairo University, Egypt where she also worked as a teaching assistant from 2003 till 2007 with major in Image Processing. Meanwhile, she obtained her Master's Degree in Video Processing (2007) from Cairo University. In 2008, she joined the team of Medical Physics where she finished with distinction her pre-doctoral studies about mammography and breast cancer (2009) in Biomedical Sciences at the KU Leuven, Belgium. She was granted a PhD scholarship from the OPTIMAM project (UK) in 2010 to develop, simulate and validate 3D models of breast lesions and tools to optimize the performance of breast tomosynthesis. She obtained her doctoral degree in 2014, KU Leuven, Belgium. In the same year, she started working in the department of Maxillofacial surgery, University hospitals Leuven (Belgium) with Prof. dr. Constantinus Politis as clinical engineer with focus on 3D planning of orthognathic surgeries. Next to the patient related work, she is part of the research group of the OMFS-IMPATH research group (KU Leuven, Belgium) where she supervises students, supports different research projects related to 3D printing and 3D simulations. She is also collaborating with Materialise (Leuven, Belgium) as consultant to improve the CMF software for orthognathic surgeries next to other research related projects.

Maximiliaan SMEETS

Maximiliaan Smeets graduated from the Catholic University of Leuven in June 2018 as a Medical Doctor and is now an active Oral and Maxillofacial trainee at the University Hospital of Leuven. His research interests include oral oncology and Oral and Maxillofacial Surgery in general. Since 2020 Maximiliaan Smeets is a PhD candidate at the OMFS-IMPATH Research Group, and he focuses on the onset, etiology, and treatment of persistent trismus after oral oncology treatment. His research is mentored by Prof. dr. Constantinus Politis, Prof. dr. Reinhilde Jacobs, dr. Michel Bila, and Jeroen Van Dessel.

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Team

Sohaib SHUJAAT

Sohaib Shujaat was born on November 29th, 1985. He achieved his degree in Bachelor of Dental Surgery (B.D.S) from Lahore Medical and Dental College, Lahore, Pakistan (2004 - 2008). After his graduation, he worked as an Internee in all clinical departments of dentistry at Lahore Medical and Dental College, Lahore, Pakistan (2009-2010). He obtained his Master of Science (MSc. Dent Sci) degree in Oral and Maxillofacial Surgery (360 credits) with merit from Glasgow Dental School and Hospital, University of Glasgow, Glasgow, United Kingdom, under the guidance of Professor Ashraf Ayoub (2010-2012). During his Masters, he worked on 4-Dimensional facial soft tissue changes in oncology patients. From March 2013 till September 2017, he worked as a Lecturer in the Department of Oral and Maxillofacial Surgery and Course Director of Internal Medicine and Comprehensive Patient Management (CPM) for dental students at Imam AbdulRahman Bin Faisal University (Formerly University of Dammam), Dammam, Kingdom of Saudi Arabia. At the same instance, he served as a Specialist (Registrar) in the Department of Oral and Maxillofacial Surgery, King Fahd Hospital of the University. Currently he is a PhD candidate (OMFS-IMPATH research group, KU Leuven) with Professor Reinhilde Jacobs as his promotor. His research topic for PhD is related to three-dimensional analysis of hard and soft tissue changes in orthognathic surgery patients and to develop a start of art predictive model for treatment planning.

Dandan SONG

Dandan Song was born on March 11th, 1990. She achieved her degrees in both Bachelor and Master of Oral Medicine from Dalian Medical University, China. During her Master, she worked on the effect of the different implant placement and loading protocols on the osseoperception around the implant. Currently she is a PhD Candidate in OMFS-IMPATH Research Group, KU Leuven, with professor Reinhilde Jacobs as her promoter. She is studying the effect of the bisphosphates and radiation on the jaw bone and blood vessel changes.

Yi SUN

Yi Sun obtained his PhD in Biomedical Sciences, Master of Medical imaging and Bachelor in Electronic Engineering. Since 2007, he worked in the field of computer assistant surgery planning, with focus on oral and maxillofacial surgery. His main professional interest is template-based and image-guided solution for dental implant placement, design of digital splint for orthognathic surgery, orofacial reconstruction using fibular or DCIA flap. Currently he is responsible for the 3D surgical simulation team in the department of oral and maxillofacial surgery (UZ Leuven). His current research interest are: design of patient specific implant, tissue engineering by using 3D printed titanium scaffold and development of image-guided surgical simulation system (navigation system).

Isti Rahayu SURYANI

Isti Rahayu Suryani was born on November 20th, 1980. She obtained her Doctor of Dental Medicine (2006) from Faculty of Dentistry, UGM-Indonesia, Master of Biomedical Engineering (2012) from Graduate School of UGM-Indonesia and Specialist in Oral Radiology (2016) from Padjajaran University-Indonesia. She has worked as lecturer in Departement of Dentomaxillofacial Radiology, Faculty of Dentistry, UGM and also as Oral Radiologist at UGM Dental Hospital. Currently, she is PhD candidate in OMFS-IMPATH research group, KU Leuven from Desember 2019 with Professor Reinhilde Jacobs as her promotor. Her research focus on Imaging of Medication-related osteonecrosis of the jaw.

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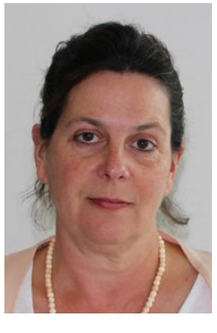
Team

Kostas SYRIOPOULOS

Kostas Syriopoulos is dentist specialized in oral and maxillofacial radiology. He graduated as dentist from the University of Athens, Greece. He has a MSc degree (University of London) as well as a PhD degree (VU, Amsterdam) in Dental Radiology. He had an internship in the Dept. of Oral Radiology (Stellenbosch University, Cape Town). Further, he received the diploma in Health Physics level 3 (TU Delft). In the Netherlands Level 3 is a higher expert level of health physics, necessary for supervising in radionuclide laboratories or working in a medical profession with higher risk or responsibility, like clinical physics and nuclear medicine. From 2001 to 2016 he was a staff-member in the department of Dentomaxillofacial Radiology, ACTA, Amsterdam. Since February 2015 he has been a staff member in the Department of Imaging & Pathology, KU Leuven. His main professional interests are Diagnostic Radiology, Radiography Education and Radiation Protection.

Els TIJSKENS



Els Tijskens graduated as a dentist in 1984 at KU Leuven. She has been working as an endodontist since 2000, and has a second line practice for paediatric endodontics and traumata. In 2011 she obtained a license to use N2O-sedation, which she is applying on indication. She is a Certified Member of the European Society for Endodontology (ESE), Fellow of the International Association for Dental Traumatology (IADT), founding board member and President of the Flemish Society for Endodontology (FSfE vzw). She has been lecturing to GP's at NIVVT for more than a decade. She is involved in reading the CBCT images at UZLeuven, and has been teaching Medical Imaging at UCLL opleiding Mondzorgkunde until August 2019.

Andres TORRES

Andres Torres was born on July 4th, 1988 in Bogota, Colombia. He obtained his degree as General Dentist in 2012 from the University of Los Andes, Santiago, Chile. During the training in Dentistry, he participated twice in a research internship on CBCT in Endodontics at the KU Leuven, Leuven, Belgium, led by Professor Reinhilde Jacobs. In March 2014 he achieved the equivalence of foreign diploma "Titulo de Cirujano Dentista" with the Flemish degree of "Master of Science in Dentistry". In 2015 he obtained the diploma of Postgraduate studies in Advance Medical Imaging at the KU Leuven, Leuven, Belgium. Further, he obtained a specialization degree in Endodontics in July 2017, under the guidance of Professor Paul Lambrechts at the KU Leuven, Leuven, Belgium.
He works as an Endodontic specialist in private practice. He is instructor of the Endodontic postgraduate at KU Leuven, Leuven, Belgium and visiting instructor of the Endodontic postgraduate at KI, Stockholm, Sweden. Currently he is a PhD candidate (OMFS-IMPATH research group, KU Leuven, Belgium) with Professor Reinhilde Jacobs as his promoter and Professor Paul Lambrechts as his co-promoter. His research topics are: 3-Dimensional Guided Endodontics, 3-Dimensional Assessment of Apical Radiolucencies, Characterisation of Root and Canal Morphology and Maxillary Sinus and Endodontics.

Fréderic VAN DER CRUYSSEN

Fréderic Van der Cruyssen is a PhD candidate at OMFS-IMPATH research group under promotorship of Prof. dr. Constantinus Politis, Prof. dr. Reinhilde Jacobs and Prof. dr. Tara Renton (Oral Surgery, King's College, Londen, UK). He received his Medical Degree from the Catholic University of Leuven in June 2017 with a Master's thesis on trigeminal nerve physiology. Currently he is an oral and maxillofacial trainee at the University Hospitals Leuven. His research is focused on traumatic trigeminal nerve injuries.
Some of his current projects are:

- Development and validation of magnetic resonance neurography to visualize peripheral trigeminal nerve anatomy and trauma
- Improving current diagnostic methods in assessing post-traumatic trigeminal neuropathy & implementing treatment protocols with attention for Quality of Life
- Prediction of post-traumatic trigeminal neuropathy using multimodal factors
- Costs and burden of disease in post-traumatic trigeminal neuropathy in Belgium
- Orofacial quantitative sensory testing

Jeroen VAN DESSEL

Jeroen Van Dessel has a MSc in Biomedical Sciences (KU Leuven) and Msc in Advanced Medical Imaging (KU Leuven). Currently, he is a PhD candidate at the Child- and Adolescent Psychiatry Research Centre, Catholic University Leuven, under promotorship of Prof. Dr. Marina Danckaerts. Where he studies the neural signature of delay aversion in ADHD using functional Magnetic Resonance Imaging. Besides his PhD in the psychiatry domain, he still remains active in dental radiology field as a researcher at the OMFS-IMPATH research group. He has achieved the second place in the European DentoMaxilloFacial Radiology Research Award (2012), the first place in the Odontológico Congresso de Universidade de São Paulo Research Award (2013) and the first place in the European DentoMaxilloFacial Radiology Research Award (2014). His research topics are developing and validating tools for objective bone quality and quantity assessment on Cone-Beam Computed Tomography and Micro-CT images.

Pieter-Jan VERHELST

Dr. Pieter-Jan Verhelst is a PhD candidate at the OMFS-IMPATH research group at the University of Leuven under promotorship of Prof. dr. Reinhilde Jacobs, Prof. dr. Constantinus Politis, Prof. dr. Hilde Peeters and Prof. dr. Gwen Swennen. He graduated at the University of Leuven in Medicine (MD, magna cum laude) in 2017 with a master's thesis on the fibula free flap in facial reconstruction. Currently, he is an Oral and Maxillofacial trainee at the department of Oral and Maxillofacial Surgery at the University Hospitals of Leuven. His research focusses on dentocraniofacial deformities, orthognathic surgery and condylar resorption. Some of his current projects are:

- Development and validation of an analysis protocol for condylar remodeling
- Etiological factors in condylar resorption
- Bridging the gap between 3D craniofacial phenotyping and genotyping

Laurence VERSTRAETE

Laurence Verstraete is a PhD candidate at the OMFS-IMPATH research group at the University of Leuven under promotorship of Prof. dr. Constantinus Politis, Prof. dr. Reinhilde Jacobs and Dr. Ir. Eman Shaheen. She obtained her Medical Degree at the University of Ghent in June 2018. Currently, she is an Oral and Maxillofacial surgery trainee at the University Hospitals of Leuven. Her research is focused on the three-dimensional planning, evaluation and follow-up of orthognathic surgery with special interest in soft tissue analysis.

Myrthel VRANCKX

Myrthel Vranckx is a PhD-researcher at the OMFS-IMPATH research group under promotorship of Prof. dr. Reinhilde Jacobs and Prof. dr. Constantinus Politis (Department Imaging and Pathology, KU Leuven). In June 2016, she graduated as MSc in Biomedical Sciences with a Master's Thesis in the use of CT imaging in Forensic Medicine (Faculty of Medicine, KU Leuven). Her PhD research is mainly focused on third molar pathology and postoperative morbidity associated with third molar surgery. She coordinates a multicentric research project that is ongoing in different hospitals in Belgium. More info on www.m3mka.be. Moreover, she is involved in multiple radiological studies with regard to third molar pathology and anatomical variations of the mandibular canal. She combined her PhD with Postgraduate Studies in Advanced Medical Imaging (Faculty of Medicine, KU Leuven), from which she graduated in June 2020.

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Team

Xiaotong WANG

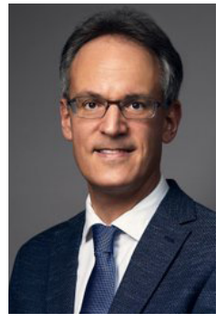
Xiaotong Wang received her degrees in both Bachelor and Master of Dental Medicine from Harbin Medical University, China. After her graduation, she worked as an Oral and Maxillofacial Surgeon in the First Affiliated Hospital of Harbin Medical University. Currently, she is a PhD candidate at OMFS-IMPATH research group with Prof. dr. Reinhilde Jacobs as her promoter. Her research is focused on Digital dentistry: development of AI-driven prediction and CBCT-based biomodels.

Kathia DUBRON

Kathia Dubron is a PhD candidate at the OMFS-IMPATH-research group at the University of Leuven under promotorship of Prof. dr. Constantinus Politis, Prof. dr. Reinhilde Jacobs and Dr. Ir. Eman Shaheen. She received her Medical Degree (MD) in 2017 and Master degree in Management (MM) in 2019 from the Catholic University of Leuven. Currently, she is an Oral and Maxillofacial surgery trainee at the University Hospitals of Leuven. Her research is focused on virtual planning of zygomatico-orbital complex fractures, with special interest in the implementation of artificial intelligence.

C. VISITING PROFESSORS

Michael BORNSTEIN



Michael Bornstein has been appointed in 2016 as Clinical Professor in Oral and Maxillofacial Radiology at the Faculty of Dentistry, The University of Hong Kong, Hong Kong SAR, China. In December 2018 he is been appointed as Associate Dean of "Research and Innovation" of the Faculty of Dentistry. He is a Visiting Professor at the OMFS-IMPATH Research Group, Department of Imaging and Pathology, University of Leuven, Belgium.In January 2020 he will take the position as professor and chair of the Departement of Oral Health & Medicine at the University Center for Dental Medicine Basel (UZB) of the University of Basel, Switzerland.He obtained his dental degree (1998) and thesis (Dr. med. dent., 2001) at the University of Basel. He continued with a specialisation in oral surgery and stomatology in Basel (1998-1999, Prof. Dr. Dr. J. Th. Lambrecht) and Bern (2000-2002, Prof. Dr. D. Buser). In 2004, he was visiting assistant professor at the Department of Periodontics (Prof. Dr. D. Cochran) at the University of Texas Health Science Center at San Antonio, USA, with a grant from the Swiss National Science Foundation. From 2007-2014 he was head of the Section of Dental Radiology and Stomatology, University of Bern. In 2009, he obtained the Habilitation (Privatdozent / PhD) and in 2014 he became Asscociate Professor in the field of „Oral Surgery and Stomatology“. His fields of research include cone beam computed tomography (CBCT) in clinical dental practice, diagnostic imaging, stomatology/ oral medicine, GBR procedures and dental implants. He has published over 150 original articles, and is the author / co-author of numerous case reports, review articles, and book chapters.

André LEITE

André Leite is an Associate Professor at the University of Brasília, Brazil, in the field of Oral Radiology. He has been teaching at the University since 2003. He has obtained his dental degree at the same university (2000). He is specialist in Oral Radiology (Brazilian Association of Dentistry, 2002), Master in Health Sciences (University of Brasília, Brazil, 2007), PhD in Health Sciences (University of Brasília, Brazil, 2009). He is a member of two postgraduate programs (Dentistry and Health Sciences) in which he supervises master’s and doctoral students. His field of research is focused on oral diagnosis and imaging research, with emphasis on the following topics: osteoporosis, medication-related osteonecrosis of the jaws, oral cancer, dental imaging education and artificial intelligence. Currently, he is collaborating with OMFS-IMPATH research group, Leuven, Belgium (Prof. dr. Reinhilde Jacobs) where he will stay one year supported by a FAP-DF scholarship (postdoctoral internship).

Krisztian NAGY

Krisztian Nagy is a Maxillofacial Surgeon with special interest and experience in cleft surgery. He has been working as the co-ordinator and leading surgeon of the Cleft Care Centre, at the 1st Department of Paediatrics, Semmelweis University, Budapest, Hungary. He has been also working as a Consultant Maxillofacial Surgeon, in AZ St-Jan Bruges-Oostende Hospital, Belgium since March 2012. He became Fellow of the European Board of Oro-Maxillofacial Surgery & Head and Neck Surgery (FEBOMS) in September 2012. He is currently Guest Professor at Leuven University, KU Leuven, Belgium. He graduated at the Semmelweis University Budapest, Hungary in medicine (MD, summa cum laude) and in dentistry (DDS, magna cum laude). He specialized in oral and Maxillofacial surgery at the Semmelweis University, at the KU Leuven and in AZ SInt Jan in Bruges, Belgium. His postgraduate training was additionally followed by clinical experiences in Bruges, Minden, Vienna, Wellington, Zürich and Taipei. He is now member of the European Association for Cranio-Maxillofacial Surgery (EACMFS), the European Academy of Facial Plastic Surgery (EAFPS) and the CranioMaxillofacial Section, Arbeitsgemeinschaft für Osteosynthesefragen (AO). He is acknowledged PhD tutor of 3 PhD students. He defended his doctoral thesis on the subject of “Objective methods for evaluation of surgical outcomes in cleft lip and palate surgery” (PhD). His professional field of interest is in orthognathic, cleft and craniofacial surgery.

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Team

Erich RAUBENHEIMER

After receiving a MChD degree in Oral Pathology at the University of Pretoria, Erich Raubenheimer joined Medunsa in 1982 as Head of Oral Pathology and Acting Head of Anatomical Pathology. During the first years of appointment at this fledgling health sciences University he was responsible for the histopathology services rendered to the medical- and dental hospitals and regional community clinics. He obtained a PhD, DSc, FCP (SA) and CBCT certification with the American Academy of Oral and Maxillofacial Radiology, supervised 7 PhD degrees and a large number of Master’s degrees. His research interests are in head and neck diseases and pathology of mineralized tissues, particularly the diagnosis of metabolic diseases of bone. Erich authored 139 papers in peer reviewed scientific journals (eight of which were on invitation) and contributed to three chapters of the 4th edition of the World Health Organizations’ book on head and neck tumours. He was key note speaker at five international conferences and presented 99 invited scientific talks to specialist groups. Erich has a passion for the African elephant and regularly presents talks to interesting societies based on his scientific work on ivory and experience as an elephant tracker in Africa. Erich is presently employed as a senior consultant at Ampath, a large pathology practice in South Africa, holds an extraordinary professorship at the University of Pretoria and a guest professorship at KU Leuven. He is married to Claudia, a remarkable woman who blessed him with four successful children.

Claudia NOFFKE

Claudia grew up and matriculated in Germany. She obtained her under-graduate training as a Dentist at the University of Pretoria and managed her own private practice for several years. She completed her postgraduate training in Maxillofacial and Oral Radiology in 1992 and served as Lecturer in the Departments of Radiology and Diagnostics, University of Pretoria, and Oral Pathology at the Medical University of Southern Africa where she was appointed as Head of Maxillofacial and Oral Radiology in June 2001, a position from which she retired as a Full Professor in 2016. She participated actively in 46 international congresses and refresher courses and authored or co-authored an equal number of scientific papers in peer-reviewed journals. She is on the editorial boards of several distinguished journals in her field of expertise including the Radiology Section of the Oral Surgery, Oral Medicine, Oral Pathology and Oral Radiology (Triple “O”) and the Journal of Chinese Clinical Medicine. She recently co-edited the proceedings of the 2017 21st Congress of the International Association of Dentomaxillofacial Radiology in Kaohsiung, Taiwan. In recognition for her role as reviewer for Triple “O” she received the Lincoln Manson-Hing Award for distinguished service in Scientific Review from the American Academy of Oral and Maxillofacial Radiology and Elsevier Publisher. Claudia supervised- and served as external examiner for several Master’s and PhD degrees. She is currently on the Board of Directors and Regional Director (Africa) of the IADMFR and appointed since May 2018 as Guest Professor in the Department of Imaging & Pathology at the KU of Leuven. Her field expertise include ethics and legislation pertaining to radiation protection, fibro osseous disease and the radiological interpretation of gnathial tumours and cysts.

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Team

D. VISITING RESEARCHERS

Annelore DE GRAUWE

Annelore De Grauwe was born on May 9th, 1977. She graduated as a dentist in 2001 at the University of Ghent, Belgium. After one year in private practice, she decided to obtain a Master degree in Paediatric Dentistry and Special Care at the University of Ghent, which she obtained in 2005, summa cum laude. She works as a paediatric dentist in her own private practice, and performs narcodontics in the hospitals of Bruges and Dendermonde. She is an active board member of the Belgian Academy of Paediatric Dentistry since 2005. She is also active member of the EAPF, IAPD, EADMFR, IADMFR, IADR and NVDMFR. From 2016 on, she works as a researcher at OMFS-IMPATH research group, with special interest in paediatric dentistry and imaging.

Jader Camilo PINTO

Jáder Camilo Pinto obtained his degree as General Dentist in 2007 from Lavras University Center, Brazil and he obtained a specialization degree in Endodontics in 2011 from the same university. In 2018 he concluded his master degree in Dentistry with emphasis in Endodontics at Sao Paulo State University, Brazil (UNESP). He is performing his doctorate in Dentistry at UNESP under supervision of Prof. Dr. Mario Tanomaru Filho. Currently, he was granted by FAPESP (SP-Brazil) to do an internship in the OMFS-IMPATH research group under supervision of Prof. Dr. Reinhilde Jacobs, as part of his doctorate course.

Mauricio GERHARDT

Maurício Gerhardt was born in Porto Alegre, Brazil, in 1990. He obtained his dental degree in 2012 and his Master in Prosthodontics (2018) from the Pontifical Catholic University of Rio Grande do Sul, Brazil. Currently, he is a PhD candidate in prosthodontics at the same university under the supervision of Prof. Dr. Rosemary Shinkai. He was granted a scholarship from the Brazilian government (CAPES) to collaborate with the OMFS-Impath research group, under the supervision of Prof. Dr. Reinhilde Jacobs, for one year as part of his doctorate.

Victor Aquino WANDERLEY

Victor Aquino Wanderley is Dentist (2010 – 2015), graduated by University of Pernambuco – Brazil, Master in Oral Radiology (2016 – 2018) and PhD student at University of Campinas – Brazil (2018 – currently) with Prof. dr. Matheus Lima Oliveira as promoter. He is doing part of his PhD in the OMFS-IMPATH research group at KU Leuven with Prof. dr. Reinhilde Jacobs as co-promoter. His research topic for PhD is related to blooming artifact in several Cone-Beam Computed Tomography units.

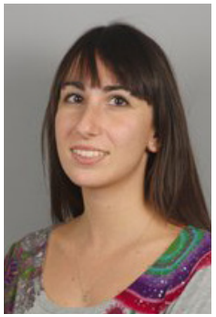
Hugo Gaêta ARAUJO

Hugo Gaêta Araujo is a dentist (University of Sao Paulo – 2015), Master in Oral Radiology (University of Campinas – 2018), and PhD student in Oral Radiology (University of Campinas). Currently, he was granted by the Brazilian government to do an internship in the OMFS-IMPATH research group, to develop part of his thesis under the supervision of Prof. dr. Reinhilde Jacobs. His main research topics are: gubernacular canal, digital imaging, osteonecrosis of the jaws.

Natália Siqueira LOBO

Natália Siqueira Lobo is a dentist (2009 – 2015), graduated by the State University of Pernambuco – Brazil. During this period, she participated in the program Science without Borders with a CNPq fellowship at Brock University – Canada (2013 – 2014). For completion of this grade she performed a research internship at the Department of Physics - Brock University, under the supervision of Prof. dr. Thad Harroun. She is a Specialist in Endodontics (2016 – 2018; State University of Campinas – Brazil) and has worked in private dentistry clinics. At the present moment she is a Master student in Restorative Dentistry - Endodontics area (State University of Campinas – Brazil) performing a sandwich period with a FAPESP fellowship at KU Leuven (2018/25051-0), under the supervision of Prof. dr. Alexandre Augusto Zaia and co-supervision of Prof. dr. Reinhilde Jacobs.

Denise MURGIA



Denise Murgia was born in Petralia Sottana, Italy, in 1992. She graduated in Pharmacy and Industrial Pharmacy in 2016 at the University of Palermo. During the thesis, she worked in a laboratory of Pharmaceutical Technology specialized in the design, development and characterization of new Drug Delivery Systems for the treatment of oral cavity diseases. After graduation, she worked as a high school teacher of chemistry, biology and science.
She is a PhD student in “Oncology and Experimental Surgery” at the University of Palermo as a pharmaceutical technologist with a project that aims to promote a new protocol of Guided Bone Regeneration using the Non Transfusional Hemo-Components. Now she is doing an internship as a member of the OMFS-IMPATH research group.

3

Research

A. PROJECTS

B. PUBLICATIONS

- International peer-reviewed publications

C. CHAIRS

D. DOCTORAL THESIS DEFENSES

3
Research

A. PROJECTS

National funding

M3-OBSERVATORIUM

Epidemiological study on the surgical removal of third molars.

In samenwerking met Vlaams Ziekenhuisnetwerk KU Leuven

FWO

TOOTH AUTOTRANSPLANTATION

The development and clinical application of CBCT-based tooth auto transplantation.

- FWO

TREASURE

Dentomaxillofacial paediatric imaging: an investigation towards low dose radiation induced risks

- FWO SCK – CEN Dimitra

EXTRACT-NOAC

Use of new oral anticoagulants in oral surgery

BOF

BOF CELSA/18/038

Harmonization of the use of cone-beam computed tomography for developmental disorders in the maxillofacial region.

BOF C24/18/065

Beeldkwaliteitsoptimalisatie van dentale cone-beam CT

B. PUBLICATIONS

INTERNATIONAL PEER-REVIEWED PUBLICATIONS

Ayaz, I., Shaheen, E., Aly, M., Shujaat, S., Gallo, G., Coucke, W., Politis, C., Jacobs, R. (2020). Accuracy and reliability of 2-dimensional photography versus 3-dimensional soft tissue imaging. *IMAGING SCIENCE IN DENTISTRY, 50* (1), 15-22. doi: 10.5624/isd.2020.50.1.15 Open Access

Behaeghe, M., vander Poorten, V., Hermans, R., Politis, C., Weynand, B., Hauben, E. (2020). The Milan system for reporting salivary gland cytopathology: Single center experience with cell blocks. *DIAGNOSTIC CYTOPATHOLOGY, 48* (11), 972-978. doi: 10.1002/dc.24515

Belmans N, Gilles L, Vermeesen R, Virag P, Hedesiu M, Salmon B, Baatout S, Lucas S, Lambrichts I, Jacobs R, Moreels M, DIMITRA Research Group. Quantification of DNA Double Strand Breaks and Oxidation Response in Children and Adults Undergoing Dental CBCT Scan. *SCIENTIFIC REPORTS 2020 10*;1 2113-

Brijs, K., Miclotte, I., Vermeire, S., Darche, V., Politis, C. (2020). Osteonecrosis of the jaw in patients with inflammatory bowel disease treated with tumour necrosis factor alpha inhibitors. INTERNATIONAL *JOURNAL OF ORAL AND MAXILLOFACIAL SURGERY, 49* (3), 317-324. doi: 10.1016/j.ijom.2019.08.007 Open Access

Camargo RV, Mazzi-Chaves JF, Leoni GB, Vasconcelos KF, Lamira A, Jacobs R, Sousa-Neto MD. Quantitative Assessment of 2-dimensional Parameters in Tomographic Images by Using Different Segmentation Methods. *JOURNAL OF ENDODONTICS 2020 46*;5 694-699

Candemil AP, Mangione F, Vasconcelos KF, Oenning AC, Jacobs R, Freitas DQ, Haiter-Neto F, Salmon B, Oliveira ML. Influence of the exomass on the detection of simulated root fracture in cone-beam ct - an ex-vivo study. *DENTO MAXILLO FACIAL RADIOLOGY 2020* ; 20200450-

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Croonenborghs, T.M., Van Hevele, J., Scheerlinck, J., Nout, E., Schoenaers, J., Politis, C. (2020). A multicentre retrospective clinico-histopathological review of 250 patients after parotidectomy. *INT J ORAL MAXILLOFAC SURG, 49* (2), 149-156. doi: 10.1016/j.ijom.2019.03.963 Open Access

de Castro JGK, Carvalho BF, de Melo NS, de Souza Figueiredo PT, Moreira-Mesquita CR, de Faria Vasconcelos K, Jacobs R, Leite AF. A new cone-beam computed tomography-driven index for osteoporosis prediction. *CLINICAL ORAL INVESTIGATIONS 2020 24*;9 3193-3202

de Faria Vasconcelos K, Queiroz PM, Codari M, Pinheiro Nicolielo LF, Freitas DQ, Jacobs R, Haiter-Neto F. A quantitative analysis of metal artifact reduction algorithm performance in volume correction with 3 CBCT devices. *ORAL SURGERY, ORAL MEDICINE, ORAL PATHOLOGY AND ORAL RADIOLOGY 2020 130*;3 328-335

da Costa Senior, O., Gemels, B., Van der Cruyssen, F., Agbaje, J.O., De Temmerman, G., Shaheen, E., Lambrichts, I., Politis, C. (2020). Long-term neurosensory disturbances after modified sagittal split osteotomy. *BRITISH JOURNAL OF ORAL & MAXILLOFACIAL SURGERY, 58* (8), 986-991. doi: 10.1016/j.bjoms.2020.05.010 Open Access

INTERNATIONAL PEER-REVIEWED PUBLICATIONS

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Deferm JT, Baan F, Schreurs R, Willaert R, Maal T, Meijer G. Digital surface scanning in flap perfusion. I*NT J ORAL MAXILLOFAC SURG. 2020* Jun 24:S0901-5027(20)30202-2. doi: 10.1016/j.ijom.2020.05.015. Epub ahead of print. PMID: 32593512.

De Poortere, A., Van der Cruyssen, F., Politis, C. (2020). The benefit of surgical management in post-traumatic trigeminal neuropathy: a retrospective analysis. *INT J ORAL MAXILLOFAC SURG.* doi: 10.1016/j.ijom.2020.05.004 Open Access

Garip M., Van Dessel J, Grosjean L, Politis C, Bila M, The impact of smoking on surgical complications after head and neck reconstructive surgery with a free vascularised tissue flap: a systematic review and meta-analysis July 2020 *BRITISH JOURNAL OF ORAL AND MAXILLOFACIAL SURGERY* DOI: 10.1016/j.bjoms.2020.07.020

Gaêta-Araujo H, Alzoubi T, Vasconcelos KF, Orhan K, Pauwels R, Casselman JW, Jacobs R. Cone beam computed tomography in dentomaxillofacial radiology: a two-decade overview. *DENTO MAXILLO FACIAL RADIOLOGY 2020 49*;8 20200145-

Gaitan-Romero, L., Shujaat, S., Ma, H., Orhan, K., Shaheen, E., Mulier, D., Willems, G., Politis, C., Jacobs, R. (2020). Evaluation of long-term hard tissue relapse following surgical-orthodontic treatment in skeletal class II patients: A systematic review and meta-analysis. *INT J ORAL MAXILLOFAC SURG.* doi: 10.1016/j.ijom.2020.09.001

Gaeta-Araujo, H., Vanderhaeghen, O., Vasconcelos, K.D F., Coucke, W., Coropciuc, R., Politis, C., Jacobs, R. (2020). Osteomyelitis, osteoradionecrosis, or medication-related osteonecrosis of the jaws? Can CBCT enhance radiographic diagnosis? *ORAL DISEASES.* doi: 10.1111/odi.13534

Gaitán Romero L, Mulier D, Orhan K, Shujaat S, Shaheen E, Willems G, Politis C, Jacobs R. Evaluation of long-term hard tissue remodelling after skeletal class III orthognathic surgery: a systematic review. *INTERNATIONAL JOURNAL OF ORAL AND MAXILLOFACIAL SURGERY 2020 49*;1 51-61

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C. CHAIRS

ANTHOGYR-STRAUMANN CHAIR FOR ORAL AND MAXILLOFACIAL SURGERY
3 YEARS (01.09.2018-30.11.2021)

The purpose of the Chair is prevention and treatment of neuropathic pain following dento-aveolar and dental implant surgery. Professor Politis is the chair holder and professor Jacobs is the co-chair holder.

DENTSPLY SIRONA CHAIR FOR ORALAND MAXILLOFACIAL SURGERY
3 YEARS (01.01.2019 - 31.12.2021)

The purpose of the Chair is prevention and treatment of nerve damage following implant surgery. Professor Politis is the chair holder and professor Jacobs is the co-chair holder.

NOBEL BIOCARE CHAIR FOR ORAL AND MAXILLOFACIAL SURGERY
YEARLY (01.10.2020 - 30.09.2021)

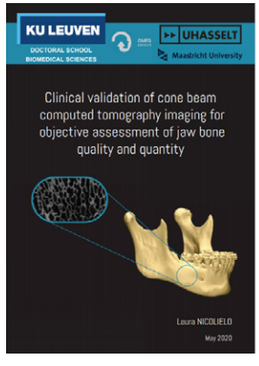
To support the research concerning the damage of the inferior alveolar nerve during mandibular surgery.

THE ALEAMED & KLS MARTIN CHAIR FOR OMFS
3 YEARS (01.08.2019 - 31.07.2022)

To support research in the field of trigeminal neuropathy in OMFS.

D. DOCTORAL THESIS DEFENSES

Laura Nicolielo is a Dental Surgeon (University of São Paulo, Brazil) (2009), Postgraduate in Oral Surgery (University of São Paulo, Brazil) (2010), Master in Applied Dental Sciences with focus in Stomatology and Radiology (University of São Paulo, Brazil) (2013), Implantologist (Opem Institute, Bauru, Brazil) (2013) and Postgraduate in Advanced Medical Imaging (KU Leuven, Belgium) (2014). From October 2013 till May 2020 she conducted her PhD in the OMFS-IMPATH Research Group under supervision of Prof. Dr. Reinhilde Jacobs (KU Leuven) and Prof. Dr. Ivo Lambrichts (UHasselt). Her research focus is in the developing of 3D radiological methods for objective analysis of jaw bone structures.



In oral and maxillofacial surgery 3D radiographs have become a breakthrough technique required for diagnosis, treatment planning and follow-up. Nevertheless, 3D capabilities are not fully explored and jaw bone structure assessment still relies on subjective and 2D methods. Due to the rapid technological advances in dentomaxillofacial radiology, more detailed image analysis based on 3D Cone-Beam Computed Tomography (CBCT) scans could offer precision and consistency for jaw bone analysis. In the present thesis, we aimed to evaluate the capabilities of CBCT technology for objective analysis of jaw bone structures, offering more accurate and reliable clinical methods for diagnosis, planning and following up of maxillofacial treatments.

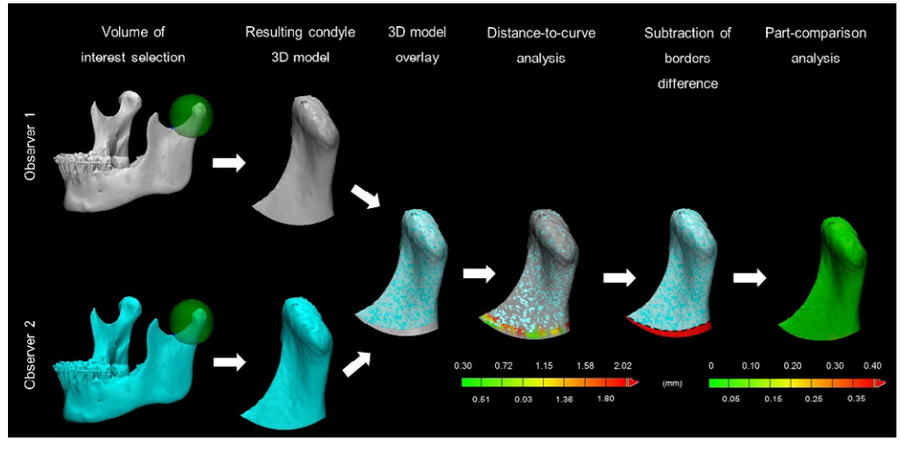
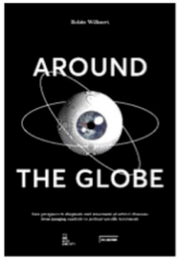


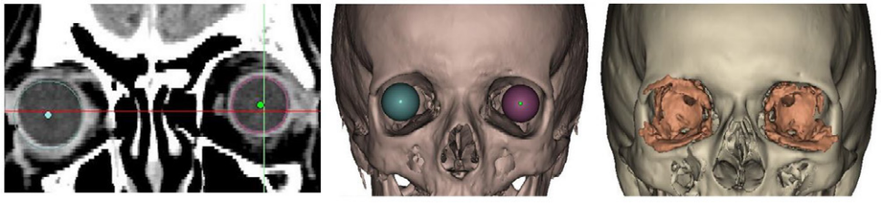
Figure 6.2. Workflow of the method reproducibility with MSCT data. 3D models generated by different observers were overlaid. A distance-to-curve analysis detected differences in the region of interest selection (mean: 1.25 mm, range: 0.3–2 mm). Before the part-comparison analysis, the error generated by the region of interest selection is subtracted (red colour). In this way, the calculation of the local differences between the 3D models is possible without counting the error of the region of interest selection. Part-comparison analysis from presented case shows a mean distance of 0.1 mm between the two condyles in the 3D models. 3D, three-dimensional; MSCT, multi-slice computed tomography.

Robin Willaert graduated as a dentist and medical doctor at the Catholic University of Leuven. During his specialisation in Oral & Maxillofacial surgery, he performed residency training in Leuven, Ghent and Arnhem. Towards the end of residency, a research project was initiated under supervision of Prof. Dr. Em. H. Vermeersch, which resulted in the present thesis project. After performing several international fellowships, with special interest in maxillofacial and orbital reconstructive surgery, he currently works as a full-time staff member at the university hospital of Leuven.

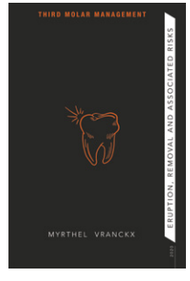


The orbit is a bony cavity containing the eye globe, which is embedded in a cuff of soft tissues including fat and muscles amongst others. Disorders of the orbital architecture, for example due to inflammatory diseases or facial trauma, can cause globe displacement, problems with vision and facial disfigurements leading to functional, social and aesthetic impairment.
Orbital imaging studies like computer tomography (CT) and magnetic resonance imaging (MRI) are valuable tools to support the diagnostic pathway, to objectify observations during follow-up or to assist the surgical planning. These scanning images can be processed to obtain additional information and quantify the globe position, tissue volumes, etc.

This thesis aims exploring the role of intra-orbital structures through a study of the post-processing capabilities. New technological opportunities can serve as a bridging tool from the clinical assessment and scan images towards the diagnosis and treatment planning in orbital disorders. Insights in the potential and pitfalls of post-processing analysis can enhance the implementation in clinical practice and research projects. The goal is to provide objective documentation of the orbital content so to improve understanding of the pathophysiological mechanisms and advance patients-specific approaches.

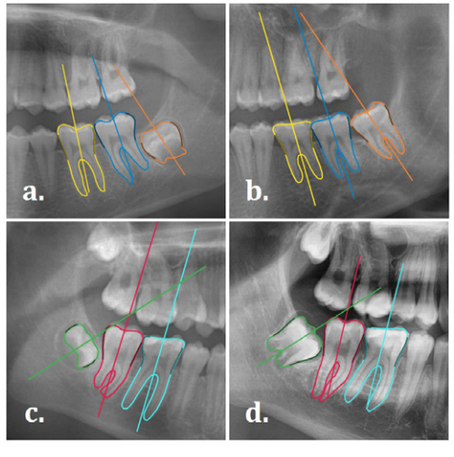


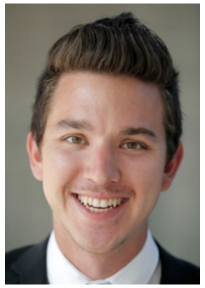
Myrthel Vranckx is a PhD (2020) and Master (2016) in Biomedical Sciences (Faculty of Medicine, KU Leuven). She was part of the OMFS-IMPATH research group from 2016 to 2020. Her research was mainly focused on third molar eruption prediction, pathology, surgery and neurosensory complications. She combined her PhD training with Postgraduate Studies in Advanced Medical Imaging (Faculty of Medicine, KU Leuven). Within both of these trainings, she explored the possibilities of the use of artificial intelligence in dentomaxillofacial radiology and oral surgery.



Lack of space in the jawbones often leads to impaction of the last teeth to erupt, the third molars or wisdom teeth. Although general agreement exists that third molars should be removed when signs or symptoms of disease are present, consensus is lacking about how to proceed in the absence of clear signs of pathology (prophylactic removal). In this atmosphere of disagreement, clinicians largely rely on their own expertise in their clinical decision making. As a result, great variation exists in the management of (impacted) third molars across countries and among specialists.
With her doctoral thesis, Myrthel Vranckx aimed to provide clear insight into the current practice of surgical third molar removal, to identify patients at risk of persistent postoperative morbidity and nerve complications, and to predict the third molars' eruption chances during development. The findings revealed several patient- and surgery-related factors that favor timely third molar removal, preferably before the age of 25, in order to avoid persistent (postoperative) sequelae and nerve complications later in life. The results may serve as a directive for clinicians and may ultimately form an evidence base for updated treatment guidelines.

Panoramic radiographs of two patients consulting the department with a 4-year time interval, showing third molar eruption in (a) and (b); and third molar impaction in (c) and (d). A fully convolutional neural network jointly predicted the molar segmentation maps and an estimate of the orientation lines, which was then iteratively refined by regression on the mesial and distal sides of the segmentation contours. Based on this predicted orientation, an estimation of the third molar's eruption chances can be made. In case of impaction, timely third molar removal (age <25 years) is advocated.





Neuroscientist Jeroen Van Dessel, affiliated with the Center for Developmental Psychiatry at the UPC-KU Leuven, defended on 16/12/2020 his PhD “The neural signature of delay aversion in attention-deficit hyperactivity disorder (ADHD)”. Jeroen conducted a large-scale brain study with more than 150 adolescents between 8 and 18 years old, who performed delay-related tasks while their brain activity was measured by a functional MRI scanner. Adolescents with ADHD showed more activity and structural differences in brain regions that process emotions compared to other adolescents. Possibly this explains why adolescents with ADHD behave differently during waiting periods. During hs PhD in the psychiatry domain, Jeroen remained active in dental radiology field as a researcher at the OMFS-IMPATH research group.

The Belgian press reported on the research results from Jeroen Van Dessel's doctoral thesis:

- Children with ADHD really cannot wait
- If the school report says: ‘You’re not good at waiting in line’
- Brain research show that children with ADHD have great difficulty waiting

binnenland

Kinderen met ADHD kunnen écht niet wachten

‘Hersenonderzoek toont aan: wachten werkt jongeren met ADHD buitengewoon op de zenuwen’

binnenland

Als in het schoolrapport staat: ‘In de rij wachten kun je niet goed’

ADHD Dat kinderen met ADHD druk of ‘onnozel’ beginnen te doen als ze ergens moeten wachten, weten hun ouders maar al te goed. ‘In de wachtrij bij de kassa laat ik hem zo veel mogelijk helpen. Anders zou hij overal aan prutsen.’

4

Lecturing

A. SCIENTIFIC CONTRIBUTIONS AT CONGRESSES

B. INVITED LECTURES

A. SCIENTIFIC CONTRIBUTIONS AT CONGRESSES

C. Politis (23/06/20)
Predict surgical Planning of orthognathic surgery using machine learning
J. Tian, Y. Gu, J. Li, J. Van Desel, C. Politis, X. zhang, Y. Sun
CARS 2020 – Computer Assisted Radiology and Surgery_ München

C. Politis (20/11/20)
vulsion of upper permanent incisors: pitfalls of replantation
Pieter-Jan Verhelst, Titiaan Dormaar, Ruxandra Coropciuc, Michel Bila, Robin Willaert, Paul Legrand, Constantinus Politis
KBVSMFH congres vrij 20 november en zat 21 november 2020 - Chateau du Lac, Genval

C. Politis (20/11/20)
Long-term outcome of autogenously
transplanted maxillary canines
Koenraad Grisar, Margaux Nys, Vincent The, Luc Vrielinck, Serge Schepers, Reinhilde Jacobs, Constantinus Politis
KBVSMFH congres vrij 20 november en zat 21 november 2020 - Chateau du Lac, Genval

C. Politis (20/11/20)
Orbital fractures in children: A 10 year retrospective analysis
Matthias Dobbeleir, Titiaan Dormaar, Edouard Grymonprez, Robin Willaert, Michel Bila, Ruxandra Coropciuc, Paul Legrand, Constantinus Politis
KBVSMFH congres vrij 20 november en zat 21 november 2020 - Chateau du Lac, Genval

C. Politis (20/11/20)
IV sedation in children: pitfalls
Lisa De Kock, Paul Legrand, Laurence Verstraete, Michel Bila, Ruxandra Coropciuc, Titiaan Dormaar, Robin Willaert, Constantinus Politis
KBVSMFH congres vrij 20 november en zat 21 november 2020 - Chateau du Lac, Genval

C. Politis (20/11/20)
Salivary gland obstruction in children and means of treatment
Fréderic Van der Cruyssen, Tomas-Marijn Croonenborghs, Ruxandra Coropciuc, Robin Willaert, Michel Bila, Titiaan Dormaar, Paul Legrand, Constantinus Politis
KBVSMFH congres vrij 20 november en zat 21 november 2020 – Chateau du Lac, Genval

C. Politis (20/11/20)
Remodeling of condylar fractures in children and young adults.
A Single-Center retrospective original study.
Lisa De Kock, Pieter-Jan Verhelst, Titiaan Dormaar, Michel Bila, Ruxandra Coropciuc, Paul Legrand, Robin Willaert, Constantinus Politis
KBVSMFH congres vrij 20 november en zat 21 november 2020 – Chateau du Lac, Genval

C. Politis (20/11/20)
Bisphosphonates and monoclonal antibodies in oral pathology in children
Katrien Brijs , Ruxandra Coropciuc, Titiaan Dormaar, Paul Legrand, Michel Bila, Robin Willaert, Heidi Segers, Constantinus Politis
KBVSMFH congres vrij 20 november en zat 21 november 2020 – Chateau du Lac, Genval

C. Politis (20/11/20)
Management and reconstruction in pediatric head and neck sarcoma
Robin Snel, Michel Bila, Sandra Jacobs, Robin Willaert, Ruxandra Coropciuc, Titiaan Dormaar, Paul Legrand, Constantinus Politis
KBVSMFH congres vrij 20 november en zat 21 november 2020 – Chateau du Lac, Genval

B. INVITED LECTURES

R. Jacobs, K Bacher	6-7/01/20	two days course for radioprotection certification in dentistry PAV Mondgezondheidswetenschappen,	Leuven
R. Jacobs, K Bacher	7-8/01/20	two days course for radioprotection certification in dentistry PAV Mondgezondheidswetenschappen,	Leuven
C. Politis	24-25/01/2020	VVMKA Het gewijzigde opleidingslandschap MKA	IOMFCOT, Leuven
R. Jacobs	25/01/20	Maxillofaciale beeldvorming en de kracht van verbeelding 22ste VVMKA upgrade 2020	IOMFOT, Leuven
C. Politis	04/02/20	3D printing in maxillofacial surgery Yi Sun – Constantinus Politis	3D Medical Printing Conference & Expo MECC Maastricht, The Netherlands
C. Politis	15/02/20	Actuele thema's in de MKA-chirurgie	VBS-MKA Gosset Hotel Brussel MKA en niet-VBS-MKA leden
R. Jacobs	18/02/20	Digital Dentistry 2020 Dentmed Research Seminar Series, Karolinksa Institutet	Stockholm
C. Politis	05/03/20	Extractietherapie in de tandheelkundige praktijk VVT – 50-tal tandartsen	Putte
C. Politis	07/03/20	Contra-indicaties en complicaties van locale anesthetica in de algemeen tandheekundige praktijk	IOMFCOT, Leuven
P. Legrand	07/03/20	Symposium 'Anesthesie in de mond' Mondheelkunde onder sedatie	IOMFCOT, Leuven
C. Politis	07/03/20	Symposium 'Anesthesie in de mond' Contra-indicaties en complicaties van lokale anesthesie in de algemene praktijk	IOMFCOT, Leuven
C. Politis	16/05/20	Tandheelkunde en MKA in onzekere tijden: hoe maak ik de praktijk coronaproof IOMFCOT	Webinar
C. Politis	16/05/20	Webinar: Tandheelkunde/MKA in onzeker tijden: organiseer de praktijk coronaproof	IOMFCOT, Leuven
R. Jacobs	25-26/06/20	WEBINAR: Interuniversity programme on the use of cone beam CT for dentomaxillofacial diagnostics PAV Mondgezondheidswetenschappen	Leuven
R. Jacobs	2/07/20	Workshop cone beam CT in de praktijk: basis PAV Mondgezondheidswetenschappen	Leuven

R. Jacobs	3/07/20	Workshop cone beam CT in de praktijk: diagnostiek PAV Mondgezondheidswetenschappen	Leuven
C. Politis	04/08/20	Workshop op het 2020 IASP World Congress on Pain ID: 759836, Trigeminal neuropathy: Trouble, trauma, tension and treatment?,	Amsterdam IASP World Congress on Pain
R. Jacobs	6/08/20	Key factors for a successful international collaboration	University of Campinas, Piracicaba Dental School, Brazil,
R. Jacobs I. Savoye	13/08/20	Webinar: Digital Dentistry unlimited?	Digital Dentistry Belgium, Barco Kortrijk
C. Politis	03/09/20	Extracties durven en doen KLTV	Stiemerheide Limburg
R. Jacobs	4/09/20	Workshop cone beam CT in de praktijk: presentatie van eigen casus PAV Mondgezondheidswetenschappen	Leuven
C. Politis	14/09/20	Zwellingen in mond en gelaat	Tandartsengroep Aalst De Montil Affligem
R. Jacobs	2-3/10/20	Accuracy of Cone Beam Computed Tomography The third DDS consensus conference	Serrlunga d'Alba, Italy
C. Politis	21/10/20	Wondhelingsproblemen in de mond Tandartsen, Radisson Blu Astrid Hotel, Antwerpen	NIVVT Antwerpen
C. Politis	27/10/20	Lokale anesthesie in de tandheelkunde KLTV	Terhills Maasmechelen Limburg
T. Dormaar	08/10/20	Webinar: Traumatologie van het aangezicht	IOMFCOT, Leuven
E. Shaheen	29/10/20	Webinar AI based virtual patient in CMF	UCLL, Leuven
R. Jacobs	8/11/20	The artificial wonders of maxillofacial radiology International Radiology Day, Webinar	
R. Jacobs	20/11/20	Imaging beyond diagnosis: more than you can see	Universidad de Los Andes, Santiago, Chili,
R. Jacobs	27-29/11/20	CBCT: the art of scanning In Women Dentists global virtual conference: leadership and excellence in contemporary dentistry	

R. Jacobs	3/12/20	The artificial wonders of maxillofacial radiology Webinar	Rishirau College of Dental Sciences & Research Center, Bhopal, India,
M. Ezeldeen, M Cadenas, J. Wyatt, R.Jacobs	3/12/20 10/12/20 11/12/20	Tandauotransplantatie Leuven Symposium webinars op	Leuven
R. Jacobs	9/12/20 10/12/20	CBCT: waar beginnen we?	Leuven
C. Politis	17/12/20	Klinische wijsheden over wijsheidstanden. Symposium:"Worden we wijzer met wijsheidstanden"	Leuven
M Vranckx	17/12/20	15000 wijsheidstanden & bevindingen Symposium:"Worden we wijzer met wijsheidstanden"	Leuven
F. Van der Cruyssen	17/12/20	Wijsheidstanden & zenuwen gelinkt Symposium:"Worden we wijzer met wijsheidstanden"	Leuven

5

3D lab

A. TEAM

B. PROJECTS

C. PUBLICATIONS

The 3D lab facility was officially introduced in autumn 2014, as an integrated part of the Department of Oral and Maxillofacial surgery at UZ Leuven. Together with the maxillofacial imaging center, the 3D-lab facility is fully integrated in the workflow of the daily clinic. The work started from simple segmentation and 3D printing of anatomical structures to 3D planning of complex surgeries. Currently, the 3D lab works in a multidisciplinary team that brings together the expertise of doctors, scientists, engineers to improve care for each individual patient. This closed cooperation enabled the surgeon and patient to maximize the benefits from 3D technology. The focus of our 3D lab is how to integrate 3D technologies in the clinical workflow to develop new medical treatment methods and to carry out clinical research in the field of oral and maxillofacial surgery. This involves computer assisted surgical planning, 3D printing of anatomic models and surgical templates, 3D metal printing of patient specific implant and image-guided surgery. Besides Oral and Maxillofacial surgery, the 3D lab is collaborating internally within UZ Leuven departments, and externally with 9th People Hospital Shanghai, 4th Military Medical University Xi'an China, Department of Mechanical Engineering Jiao Tong University, Karolinska University Hospital Stockholm, etc.

A. TEAM

Constantinus POLITIS

Constantinus Politis is Oral and Maxillofacial Surgeon. He is currently Full Professor and Chairperson of the Department of Oral and Maxillofacial Surgery at Leuven University Hospitals, KULeuven, Belgium. He is an invited Lecturer at the EHSAL in Brussels. He graduated at the Catholic University of Leuven in medicine (MD, summa cum laude), in dentistry (DDS, magna cum laude). He specialized in oral and maxillofacial surgery at the Catholic University of Leuven. Postgraduate training was additionally followed in Arnhem (Stoelinga), Aachen (Koberg), Copenhagen (Pindborg), Göteborg (Bränemark) and San Francisco (Marx). He holds an honorary professorship at the Fourth Medical Military University of Xi'an, China. He also holds a master degree in management (MM) from the Applied Economic Scienes at the University of Hasselt and a master degree in Hospital Management (MHM) from the Catholic University of Leuven. He became a recognition as medical specialist in management of health care data and is now member of the National Council of Hospital Facilities. He is Vice-President of the Professional Union of Belgian Oral and Maxillofacial Surgeons. He is acknowledged trainer of OMFS trainees. He defended his doctor's thesis on the subject of complications of orthognathic surgery (PhD). His professional field of intrest is in orthognathic and orthodontic surgery and trigeminal nerve dysfunction. Clinical research projects include prevention and repair of iatrogenic trigeminal nerve injury, transplantation of teeth and orthognathic surgery. He has been granted membership of the Belgian Royal Academy of Medicine.
Researchgate: https://www.researchgate.net/profile/Constantinus_Politis2

Reinhilde JACOBS

Reinhilde Jacobs is dentist, Doctor in Dental Sciences (PhD University of Leuven), periodontologist (KU Leuven) and Master in Dental Radiology (University of London). She is full professor at the University of Leuven and visiting professor at Karolinksa Institutet, Stockholm, Sweden and the Dalian Medical University in China. R. Jacobs is heading the omfs impath research group of the KU Leuven (omfsimpath.be) and the clinical center of dentomaxillofacial radiology (UZleuven). She is Secretary General of the International Association of DentoMaxilloFacial Radiology. She is section editor of 5 journals (Journal of Dentistry, Clinical Oral Investigations, International Journal of Oral Implantology, European Journal of Radiology and Oral Radiology). She has received the D Collen Research Travel Award (1994), a postdoctoral fellowship of the European Commission (1994-95), the IADR Young Investigators Award (1998) and the Belgian Joachim Award in Odontostomatology (1999). In 2013, she received a Dr Honoris Causa at the “Iuliu Hatieganu” University of Medicine and Pharmacy in Cluj-Napoca. She is involved in many multidisciplinary and interuniversity research collaborations, with a specific focus on imaging research, artificial intelligence and bioprinting. She has been actively participating in 5 European projects and is (co-)author of 5 books and more than 450 publications in peer-reviewed journals besides multiple invited lectures and publications in other journals or books. Scopus (2020): h:64

Eman SHAHEEN

Eman (Emmy) Shaheen was born on July 12th, 1982 in Giza, Egypt. She graduated with honor from the faculty of Computer Sciences and Information Technology (2003), Cairo University, Egypt where she also worked as a teaching assistant from 2003 till 2007 with major in Image Processing. Meanwhile, she obtained her Master’s Degree in Video Processing (2007) from Cairo University. In 2008, she joined the team of Medical Physics where she finished with distinction her pre-doctoral studies about mammography and breast cancer (2009) in Biomedical Sciences at the KU Leuven, Belgium. She was granted a PhD scholarship from the OPTIMAM project (UK) in 2010 to develop, simulate and validate 3D models of breast lesions and tools to optimize the performance of breast tomosynthesis. She obtained her doctoral degree in 2014, KU Leuven, Belgium. In the same year, she started working in the department of Maxillofacial surgery, University hospitals Leuven (Belgium) with Prof. dr. Constantinus Politis as clinical engineer with focus on 3D planning of orthognathic surgeries. Next to the patient related work, she is part of the research group of the OMFS-IMPATH research group (KU Leuven, Belgium) where she supervises students, supports different research projects related to 3D printing and 3D simulations. She is also collaborating with Materialise (Leuven, Belgium) as consultant to improve the CMF software for orthognathic surgeries next to other research related projects.

Yi SUN

Yi Sun obtained his PhD in Biomedical Sciences, Master of Medical imaging and Bachelor in Electronic Engineering. Since 2007, he worked in the field of computer assistant surgery planning, with focus on oral and maxillofacial surgery. His main professional interest is template-based and image-guided solution for dental implant placement, design of digital splint for orthognathic surgery, orofacial reconstruction using fibular or DCIA flap. Currently he is responsible for the 3D surgical simulation team in the department of oral and maxillofacial surgery (UZ Leuven). His current research interest are: design of patient specific implant, tissue engineering by using 3D printed titanium scaffold and development of image-guided surgical simulation system (navigation system).

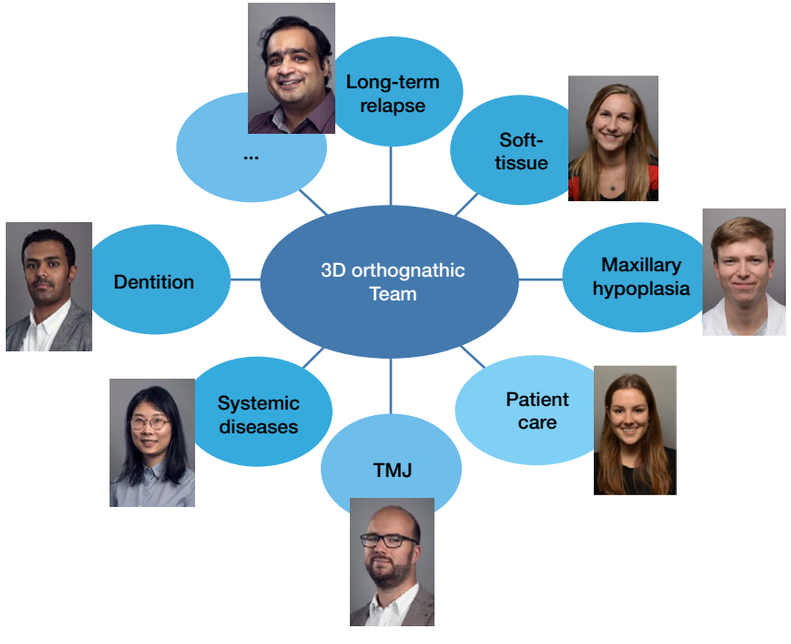
Sohaib SHUJAAT

Sohaib Shujaat was born on November 29th, 1985. He achieved his degree in Bachelor of Dental Surgery (B.D.S) from Lahore Medical and Dental College, Lahore, Pakistan (2004 - 2008). After his graduation, he worked as an Internee in all clinical departments of dentistry at Lahore Medical and Dental College, Lahore, Pakistan (2009-2010). He obtained his Master of Science (MSc. Dent Sci) degree in Oral and Maxillofacial Surgery (360 credits) with merit from Glasgow Dental School and Hospital, University of Glasgow, Glasgow, United Kingdom, under the guidance of Professor Ashraf Ayoub (2010-2012). During his Masters, he worked on 4-Dimensional facial soft tissue changes in oncology patients. From March 2013 till September 2017, he worked as a Lecturer in the Department of Oral and Maxillofacial Surgery and Course Director of Internal Medicine and Comprehensive Patient Management (CPM) for dental students at Imam AbdulRahman Bin Faisal University (Formerly University of Dammam), Dammam, Kingdom of Saudi Arabia. At the same instance, he served as a Specialist (Registrar) in the Department of Oral and Maxillofacial Surgery, King Fahd Hospital of the University. Currently he is a PhD candidate (OMFS-IMPATH research group, KU Leuven) with Professor Reinhilde Jacobs as his promotor. His research topic for PhD is related to three-dimensional analysis of hard and soft tissue changes in orthognathic surgery patients and to develop a start of art predictive model for treatment planning.

5
3D Lab

B. PROJECTS

- Long-term bone relapse: maxillary relapse and mandibular remodeling
- Soft tissue changes after orthognathic surgery
- Transverse maxillary hypoplasia for orthognathic patients
- Continuous Quality Improvement in orthognathic surgery
- Condylar changes after orthognathic surgery
- Systemic diseases related to orthognathic surgery
- Dental changes evaluation in 3D after orthognathic surgery
- 3D evaluation of airway changes after orthognathic surgery
- Maxillofacial trauma management



C. PUBLICATIONS

INTERNATIONAL PEER-REVIEWED PUBLICATIONS

Ayaz, Irem; Shaheen, Eman; Aly, Medhat; Shujaat, Sohaib; Gallo, Giulia; Coucke, Wim; Politis, Constantinus; Jacobs, Reinhilde; ,Accuracy and reliability of 2-dimensional photography versus 3-dimensional soft tissue imaging, *Imaging Science in Dentistry,50,1,15-22,2020,*

da Costa Senior, O; Gemels, B; Van der Cruyssen, F; Agbaje, JO; De Temmerman, G; Shaheen, E; Lambrichts, I; Politis, C; ,Long-term neurosensory disturbances after modified sagittal split osteotomy, *British Journal of Oral and Maxillofacial Surgery,58,8,986-991,2020*,Churchill Livingstone

Gaitan-Romero, L; Shujaat, S; Ma, H; Orhan, K; Shaheen, E; Mulier, D; Willems, G; Politis, C; Jacobs, R; Evaluation of long-term hard tissue relapse following surgical–orthodontic treatment in keletal class II patients: A systematic review and meta-analysis, *International Journal of Oral and Maxillofacial Surgery,2020*,Churchill Livingstone

Grisar, Koenraad; Smeets, Max; Ezeldeen, Mostafa; Shaheen, Eman; De Kock, Lisa; Politis, Constantinus; Jacobs, Reinhilde; ,Survival and success of autotransplanted impacted maxillary canines during short-term follow-up: A prospective case-control study, *Orthodontics & Craniofacial Research,,,,2020,*

Ma H, Van Dessel J, Shujaat S, Bila M, Gu Y, Sun Y, Politis C, Jacobs R.J Plast Reconstr Aesthet Surg. 2020 Nov 8:S1748-6815(20)30591-X. doi: 10.1016/j.bjps.2020.10.094. Online ahead of print. PMID: 33277215 Review.
Long-term functional outcomes of vascularized fibular and iliac flap for mandibular reconstruction: A systematic review and meta-analysis.

Merken, K; Zhang, G; Shaheen, E; Jacobs, R; Politits, C; Bosmans, H; ,"Implementation, validation and application of a tool for the assessment of the modulation transfer function and noise power spectrum of dental CBCT scanners",Medical Imaging 2020: *Physics of Medical Imaging,11312,113122T,2020*,International Society for Optics and Photonics

Mulier, D; Shaheen, E; Shujaat, S; Fieuws, S; Jacobs, R; Politis, C; ,How accurate is digital-assisted Le Fort I maxillary osteotomy? A three-dimensional perspective, *International Journal of Oral and Maxillofacial Surgery,49,1,69-74,2020*,Churchill Livingstone

Mulier, Delphine; Gaitán Romero, Lesly; Führer, Alberto; Martin, Catalina; Shujaat, Sohaib; Shaheen, Eman; Politis, Constantinus; Jacobs, Reinhilde; ,Long-term dental stability after orthognathic urgery: a systematic review, *European Journal of Orthodontics,2020*,

Politis C. 23/06/20
Predict surgical Planning of orthognathic surgery using machine learning
J. Tian, Y. Gu, J. Li, J. Van Dessel, C. Politis, X. zhang, Y. Sun
CARS 2020 – Computer Assisted Radiology and Surgery_ München

Nie L, Chang P, Ji C, Zhang F, Zhou Q, Sun M, Sun Y, Politis C, Shavandi A.Colloids Surf B Biointerfaces. 2021 Jan;197:111385. doi: 10.1016/j.colsurfb.2020.111385. Epub 2020 Oct 7.PMID: 33049660
Poly(acrylic acid) capped iron oxide nanoparticles via ligand exchange with antibacterial properties for biofilm applications.

INTERNATIONAL PEER-REVIEWED PUBLICATIONS

Nie, L., Chen, D., Zhong, S., Shi, Q., Sun, Y., Politis, C., Shavandi, A. (2020). Injectable cell-laden poly(N-isopropylacrylamide)/chitosan hydrogel reinforced via graphene oxide and incorporated with dual-growth factors. MATERIALS LETTERS, 280, Art.No. ARTN 128572. doi: 10.1016/j.matlet.2020.128572

Romero, L Gaitán; Mulier, D; Orhan, K; Shujaat, S; Shaheen, E; Willems, G; Politis, C; Jacobs, R;,Evaluation of long-term hard tissue remodelling after skeletal class III orthognathic surgery: a systematic review, *International Journal of Oral and Maxillofacial Surgery,49*,1,51-61,2020,Churchill Livingstone

Ruiters, Sébastien; Shujaat, Sohaib; de Faria Vasconcelos, Karla; Shaheen, Eman; Jacobs, Reinhilde; Mombaerts, Ilse; ,Three-dimensional design of a geometric model for an ocular prosthesis in ex vivo anophthalmic socket models, *Acta ophthalmologica,2020,*

Shaheen, Eman; Willaert, Robin; Miclotte, Isabel; Coropciuc, Ruxandra; Bila, Michel; Politis, Constantinus;, A novel fully automatic design approach of a 3D printed face specific mask: Proof of concept, *Plos one,15,12,e0243388,2020*,"Public Library of Science San Francisco, CA USA"

Shaheen E. 29/10/20 Webinar
AI based virtual patient in CMF
UCLL, Leuven

Shujaat, Sohaib; Shaheen, Eman; Novillo, Felipe; Politis, Constantinus; Jacobs, Reinhilde; ,Accuracy of cone beam computed tomography–derived casts: A comparative study, *The Journal of Prosthetic Dentistry,2020*,Mosby

Shujaat, Sohaib; Shaheen, Eman; Politis, Constantinus; Jacobs, Reinhilde; ,Accuracy and reliability of voxel-based dento-alveolar registration (VDAR) in orthognathic surgery patients: a pilot study with two years follow-up, *British Journal of Oral and Maxillofacial Surgery,2020,*Churchill Livingstone

Smeets, Maximiliaan; Senior, Oliver Da Costa; Eman, Shaheen; Politis, Constantinus; ,"A retrospective analysis of the complication rate after SARPE in 111 cases, and its relationship to patient age at surgery", *Journal of Cranio-Maxillofacial Surgery,48*,5,467-471,2020,Churchill Livingstone

Song, Dandan; Shujaat, Sohaib; Zhao, Ruiting; Huang, Yan; Shaheen, Eman; Van Dessel, Jeroen; Orhan, Kaan; Velde, Greetje Vande; Coropciuc, Ruxandra; Pauwels, Ruben; ,In vivo quantification of mandibular bone remodeling and vascular changes in a Wistar rat model: A novel HR-MRI and micro-CT fusion technique, *Imaging science in dentistry,50*,3,199,2020,Korean Academy of Oral and Maxillofacial Radiology

Verhelst, PJ; Verstraete, L; Shaheen, E; Shujaat, S; Darche, V; Jacobs, R; Swennen, G; Politis, C; ,Three-dimensional cone beam computed tomography analysis protocols for condylar remodelling following orthognathic surgery: a systematic review, *International journal of oral and maxillofacial urgery,49*,2,207-217,2020,Churchill Livingstone

Verhelst, Pieter-Jan; Shaheen, Eman; de Faria Vasconcelos, Karla; Van der Cruyssen, Fréderic; Shujaat, Sohaib; Coudyzer, Walter; Salmon, Benjamin; Swennen, Gwen; Politis, Constantinus; Jacobs, Reinhilde; ,Validation of a 3D CBCT-based protocol for the follow-up of mandibular condyle remodeling, *Dentomaxillofacial Radiology,49*,3,20190364,2020,The British Institute of Radiology.

5
3D Lab

Verstraete, L; Shaheen, E; Grymonprez, E; Miclotte, I; Politis, C; ,Chin wing osteotomy in a patient with craniofrontonasal dysplasia, *Oral and Maxillofacial Surgery Cases,100157*,2020,Elsevier

Wang E, Shi H, Sun Y, Politis C, Lan L, Chen X.Int J Med Robot. 2020 Oct;16(5):1-10. doi: 10.1002/rcs.2134. Epub 2020 Jun 30.PMID: 32506737
Computer-aided porous implant design for cranio-maxillofacial defect restoration.

Wang T, Zhang F, Zhao R, Wang C, Hu K, Sun Y, Politis C, Shavandi A, Nie L.Des Monomers Polym. 2020 Aug 5;23(1):118-133. doi: 10.1080/15685551.2020.1804183.PMID: 33029080 Polyvinyl Alcohol/Sodium Alginate Hydrogels Incorporated with Silver Nanoclusters via Green Tea Extract for Antibacterial Applications.

Willaert, Robin; Shaheen, Eman; Deferm, Julie; Vermeersch, Hubert; Jacobs, Reinhilde; Mombaerts, Ilse; Three-dimensional characterisation of the globe position in the orbit,Graefe's *Archive for Clinical and Experimental Ophthalmology,1-6,2020*,Springer Berlin Heidelberg

Willaert, R; Degrieck, B; Orhan, K; Deferm, J; Politis, C; Shaheen, E; Jacobs, R; ,Semi-automatic magnetic resonance imaging based orbital fat volumetry: reliability and correlation with computed tomography, *International Journal of Oral and Maxillofacial Surgery,2020*,Churchill Livingstone

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v.u. Constantinus Politis - Reinhilde Jacobs