

Alexandre F. DaSilva, DDS, DMedSc

Curriculum Vitae

EDUCATION AND ADVANCED TRAINING

1998-2002	DMedSc	Oral Biology, Harvard University
1998-2002	Advanced Education Program	Orofacial Pain, Harvard University
1987-1991	DDS	Universidade Grande Rio School of Dental Medicine, Brazil

LEADERSHIP TRAINING

2018	MayDay Pain & Society Fellowship
2019	Massachusetts Institute of Technology - Artificial Intelligence: Implications for Business Strategy Program
2020	American Dental Education Association Leadership Institute

ACADEMIC APPOINTMENTS

1996-1997	Faculty, Occlusion Unit, School of Dentistry, Universidade Estacio de Sá, Brazil
1999-2002	Research Fellow, Center for Functional Pain Neuroimaging & Therapy Research/MGH-NMR Center/Radiology Department, Harvard University/Massachusetts General Hospital, Boston, MA
2002-2006	Research Fellow, Martinos Center for Biomedical Imaging/Radiology Department, Harvard University/Massachusetts General Hospital
2003	Clinical Research Fellow, Headache Clinic-Department of Internal Medicine, Harvard University-Spaulding Rehabilitation Hospital
2006-2007	Research Associated, Psychiatry Department, Pain and Analgesia Imaging and Neuroscience Group (P.A.I.N.), Harvard University/McLean Hospital
2006-2008	Assistant Clinical Investigator, Clinical Research Collaborative, Forsyth Institute, Boston, MA
2008-2017	Assistant Professor, University of Michigan School of Dentistry Director, Headache & Orofacial Pain Effort Lab
2014-2017	Research Assistant Professor, Center for Human Growth and Development, University of Michigan
2014-present	Co-Director, Functional Near Infrared Spectroscopy Lab, Center for Human Growth and Development, University of Michigan
2017-present	Associate Professor, University of Michigan School of Dentistry Director, Headache & Orofacial Pain Effort Lab.
2017-present	Research Associate Professor, Center for Human Growth and Development, University of Michigan

NON-ACADEMIC APPOINTMENTS

1991	Private Practice, Rio de Janeiro, R.J., Brazil
1992	Head of Health Division - Second Lieutenant, Dentist, Brazilian Navy
1993-1995	Collaborator, Temporomandibular Disorders & Orofacial Pain Ambulatory, School of Dentistry, Universidade Federal do Rio de Janeiro, Brazil
1993-1995	Collaborator, Headache Unit, Neurology, University Hospital, Universidade Federal do Rio de Janeiro, Brazil
1993-1997	Private Practice, TMD & Orofacial Pain, Rio de Janeiro, Brazil
2014-present	Co-Founder and Chief Science Officer: MoxyTech Inc (University of Michigan Pain Technology Start-up: https://moxytech.net)

Alexandre F. DaSilva, DDS, DMSc
Curriculum Vitae

CERTIFICATES AND LICENSES

1991 –1998 Brazil – DDS National License
1999 – 2005 Massachusetts – Dental Board Limited
2008–Present Michigan – Dental Clinical Academic Limited: 2901019745
Michigan – Pharmacy: 5315034502
2009–2019 DEA – FD0994156
2018 Diplomate of the American Academy of Orofacial Pain Board

HONORS AND PROFESSIONAL AWARDS

1998 Young Investigator Award, American Academy of Orofacial Pain
2002 Poster Award, Brainstorm Meeting: The Future of Neuroimaging –
Athens, Greece – Organized by the Athinoula A. Martinos Center,
Harvard University
2004 Harvard School of Dental Medicine, Dean’s Scholar Program Award
2005 Harvard School of Dental Medicine, Dean’s Scholar Program Award
2012 First Place Award, University of Michigan Technology Challenge:
PainTrek –Mobile Application for Pain (Co-creators: DaSilva &
Maslowski): \$1,500
2013 Mechanism Innovation Award: NYC Neuromodulation Conference,
CUNY
2014 University of Michigan Provost’s office: Nominated for the University of
Michigan Provost’s Teaching Innovation Prize
2015 University of Michigan Provost’s office: Transforming Learning for Third
Century Grant Program Award
2015 Mette Foundation Speaker Award, U-M Medical School and School of
Dentistry Scholarship Recipient: \$3,500
2016 First, Second, and Third Poster Awards in Clinical Research and Public
Health at Research Day 2016 U-M School of Dentistry
2018 MayDay Pain & Society Fellowship 2018. This is a leadership fellowships
in the pain field created by the MayDay Fund in New York. The goal of
this fellowship, as described on its webpage
(www.maydayfund.org/mayday-fellows/) "*is to build the next generation
of pain experts who can provide evidence-based and solutions-focused
information about pain care and treatment, as well as promising research
emerging in the field*". I received training in Washington DC on media and
policy coaching support by Burness, a strategic global communications
firm in DC. All DC expenses are covered by the MayDay Fund.
2019 Exam contributor for the American Academy of Orofacial Pain Board
2019-20 American Dental Education Association (ADEA) Leadership Institute
2019 Surgeon General Report Oral Health (SGROH) 2020, Co-Writer:
Technology for practice

MEMBERSHIPS AND OFFICES IN PROFESSIONAL AND RESEARCH SOCIETIES

2001-present American Academy of Orofacial Pain
2002-present Society for Neuroscience
2002-present American Association for Dental Research
2005-present International Association for Dental Research
“Pain Neuroscience” Special Interest Group (SIG)
2013 International Association for the Study of Pain

October 15th, 2019

Alexandre F. DaSilva, DDS, DMSc
Curriculum Vitae

- “Pain Neuromodulation” SIG, 2013 Committee Member of Meetings & Symposia
2014-2015 Elected Treasurer, Michigan Section of the American Association for Dental Research
2018- Member, American Dental Education Association (289338)

TEACHING ACTIVITIES

Courses Taught

Harvard School of Dental Medicine

Didactic Courses: Pre-doctoral

- 1998-2005 Development, Summer, Lecturer, 2 hrs
1997-2007 Orofacial Pain, Summer, Lecturer and Tutor, 2 hrs/wk

Harvard Medical School

Didactic Courses: Post-doctoral

- 1999 Introductory Otolaryngology Course, Massachusetts Eye & Ear Infirmary, Summer, Lecturer, 1 hr

Grand Rounds

- 2001 Oral & Maxillofacial Surgery Department, Ether Dome Grand Round, Lecturer, 1 hr

Tufts University School of Dental Medicine

Didactic Course: Post-Doctoral

Grand Rounds

- 2000 TMD & Orofacial Pain Grand Round, Lecturer, 1 hr

University of Michigan School of Dentistry

Didactic Courses: Pre-Dental

- 2013-2014 UC 151-05: Science and the Practice of Dentistry in the 21st Century, Fall, Guest Lecturer, 1.5 hrs
2016- UC 151-05: Science and the Practice of Dentistry in the 21st Century, Fall, Guest Lecturer, 1.5 hrs

Didactic courses: Pre-doctoral

- 2008- DENT501A: Introduction to Dental Profession, Fall, Mentor, 2 hrs
2008- DENT608: Orofacial Function II, Fall, Lecturer, Guest Lecturer, 2 hrs
2009- DENT711: Advanced Topics in Oral Pathology, Fall, Guest Lecturer, 1 hr
2010- DENT509: Orofacial Function I, Summer, Guest Lecturer, 3 hrs
2013- DENT707: Clinical Neuroscience—The Patient with Orofacial Pain/Dysfunction and Comorbidities, Winter, Course Director, 2 hrs/week for 14 weeks (Director)
2018- DENT617: Endodontics I, Summer, Lecture length: 1 hour

Didactic courses: Post-doctoral

- 2008- DENTED602: The Neural Basis of Orofacial Pain and Dysfunction, Winter, Course Director, 1 hr/week for 14 weeks (Director)
2008- RESTORA860/871: Neuromuscular Physiology and Concepts of Occlusion, Winter, Guest Lecturer, 1 hr
2009 ENDODONT653: Biological Basis for Endodontists, Fall, Guest Lecturer,

October 15th, 2019

Alexandre F. DaSilva, DDS, DMSc
Curriculum Vitae

- 3 hrs
2014 TEAM Cross Talk - T-32 TEAM Training Grant, Lecturer, 1 hr
Grand Rounds
2008 Oral & Maxillofacial Surgery Depart Grand Round, Fall, Lecturer, 1 hr
2011 School of Dentistry Grand Rounds 616/51: *"Is medication really effective for chronic pain, or is mostly placebo? Use the brain to answer it..."*,
Winter, Co-Organizer/Lecturer with Jon-Kar Zubieta & Wade Cooper, 1hr

University of Michigan Medical School

Grand Rounds

- 2008 Anesthesiology Department – Grand Round, Winter, Lecturer, 1 hr
2013 Neurology Department – Grand Round, Spring, Lecturer, 1 hr
2013 Physical Medicine & Rehabilitation Department – Grand Round, Spring,
Lecturer, 1 hr
2013 Otolaryngology Department – Head and Neck Surgery – Future
Directions, Spring, Lecturer, 30 min

Student Research Advisement

Graduate Students

- 2009-2012 Marcos DosSantos, DDS, MSc: Neuroimaging and Neurostimulation in
Orofacial Pain, PhD Candidate – Neurology Department, Federal
University of Rio de Janeiro, Brazil
Project Awarded by Coordenação de Aperfeiçoamento de Pessoal de
Nível Superior, Brazil
Project Awarded in 2011 PhD Category – Research Day: University of
Michigan School of Dentistry
Primary Mentor: Alexandre DaSilva
Currently: Tenured Faculty, Federal University of Rio de Janeiro, Brazil
2012 - 2014 Adam Donnell, DDS, MS Orthodontics: Neuromodulation in Chronic
TMD pain (HD-tDCS), Primary Mentor
Research Project Awarded by the American Academy of Orofacial Pain
Primary Mentor and Thesis Committee Chair: Alexandre DaSilva
2012 - 2015 Drew Racet, DDS, MS Endodontics: Optical Neuroimaging of Dental Pain
(fNIRS)
Project Awarded by Colgate Palmolive
Project Awarded by the fNIRS pilot grant award – Center for Human
Growth and Development, University of Michigan
Primary Mentor and Thesis Committee Member: Alexandre
DaSilva
2013-2015 Clayton Fisher, DDS, MS Oral and Maxillofacial Pathology:
Neuroimaging and Neuromodulation of Orofacial Cancer Pain
Project Awarded by MCubed, University of Michigan and Rackham
Award
Primary Mentor and Thesis Committee Member: Alexandre
DaSilva
2014-2016 Dina Salman, DDS, MS Orthodontics: Neuroimaging in Chronic TMD
Pain (PET/MRI)
Project funded by NIH-NIDCR (R56)
Primary Mentor and Thesis Committee Chair: Alexandre DaSilva
2015-2017 Ryan McMahan, DDS, MS Endodontics: Neuroimaging and
Neuromodulation of Dental Pain (fNIRS & HD-tDCS)

October 15th, 2019

Alexandre F. DaSilva, DDS, DMSc
Curriculum Vitae

- Primary Mentor and Thesis Committee Member:** Alexandre DaSilva
- 2015-2017 Natalie Yang, DDS, MS Orthodontics: Impact of COMT genotypes on μ -opioid system binding in healthy subjects and chronic TMD patients
Primary Mentor and Thesis Committee Chair: Alexandre DaSilva
- 2016-2017 Isaac Dripps
PhD candidate – UM Pharmacology Graduate Program
The Effects of RGS4 on Delta Opioid Receptor-mediated Behaviors in Mice
Primary Mentor: Emily M Jutkiewicz
Thesis Committee Member: Alexandre DaSilva
- 2015-2018 Chelsea Cummiford, BS
PhD candidate – UM Neuroscience Graduate Program
First Poster Awards in Clinical Research and Public Health at Research Day 2016 U-M School of Dentistry
Brain Networks in Chronic Pain
Primary Mentors: Richard Harris & George Mashour
Thesis Committee Member: Alexandre DaSilva
- 2016-present Eddie Pantzalf, DDS
Oral Maxillofacial Surgery: Virtual Reality Breathing Neuromechanisms
Primary Mentor: Alexandre DaSilva
- 2017-present Allison Greenberg, DDS MS Orthodontics: Impact of COMT genotypes on μ -opioid system binding in healthy subjects and migraine patients
Primary Mentor: Alexandre DaSilva
Primary Mentor and Thesis Committee Chair: Alexandre DaSilva
- 2018-Present Katherine Beard, DDS, MS Orthodontics (Candidate):
Primary Mentor and Thesis Committee Chair: Alexandre DaSilva
- 2018-Present MaryCatherine Bender DDS, MS Orthodontics (Candidate):
Primary Mentor and Thesis Committee Chair: Alexandre DaSilva
- 2018 Nicholas Pelachyk DDS Endodontics (Candidate):
Thesis Committee: Alexandre DaSilva
- 2018-Present Tony Larkin, BS
PhD candidate – UM Neuroscience Graduate Program
Primary Mentors: Richard Harris & George Mashour
Thesis Committee Member: Alexandre DaSilva
- 2018-present Brenda de Souza Moura, DDS, MSc (OMFS), PhD candidate (Radiology program) Universidade Federal do Rio de Janeiro, Brazil
Co-Mentor and Thesis Committee: Alexandre DaSilva

Dental Students

- 2013-2017 Leen Khatib, Research Advisor – Accepted Orthodontic Residency Program Iowa University
- 2015-2017 David Schwitzer, Research Co-Advisor - Accepted OMFS Residency Program Park Davis, Texas
- 2015-2018 Nathan Wigington, Research Co-Advisor

Medical Students

- 2019–Summer Conrad Chrabol, M.D. 5th year M.D. students, Medical University of Warsaw, Poland

October 15th, 2019

Alexandre F. DaSilva, DDS, DMSc
Curriculum Vitae

Mentored Research Assistants/Pre-Dentals/Dental Students (Alumni)

- 2009-2010 Alexandra Martella
Currently: Endodontic Resident at University of Illinois Chicago
- 2010-2011 Nellie Kippley
Project Awarded in 2010 Undergraduate Category – Research Day:
University of Michigan School of Dentistry
Currently: Nephrology Physician Assistant, CentraCare Health System,
Minnesota
- 2012-2013 Hendrik Van Holsbeeck
Currently: DDS program University of Michigan
- 2012-2013 Leen Khatib
Currently: DDS program University of Michigan
(Accepted for the Orthodontics residency program at University of
Indiana)
- 2012-2013 JJ Ubonwan Sae-Ung (DDS program University of Michigan - Research
Pathway)
Currently: Lecturer Oral Surgery Clinic - University of Michigan
- 2012-2013 Misty DeBoer
Currently: Communications Coordinator - Institute for Central American
Development Studies (ICADS) - Costa Rica
- 2013-2014 MaryCatherine Bender
Currently: DDS program University of Michigan
(Accepted for the Orthodontics residency program at University of
Michigan)
- 2013-2014 Sarah Lucas
Awarded fellowship - Salzburg Stiftung of the American Austrian
Foundation
Currently: Optometry Program Indiana University
- 2014-2016 Rebecca Toback
Currently: MD program University of Michigan
- 2018 UROP Program - Michael Krivichkin
2018- UROP Program – Andrea Kadima
2018-19 Ifeyinwa Arinze
Currently: Graduate Film Program (M.F.A.) at the New York University
Tisch School of Arts.

Postdoctoral Trainees

- 2011-2012 Ilkka Martikainen MD, PhD: Neuroimaging in Trigeminal Pain
Project Awarded by Instrumentarium Science Foundation & Postdoc-pooli
Foundation - Finnish Government Fund
Co-mentors: Alexandre DaSilva/Jon-Kar Zubieta
Currently: University of Turku, Turku, Finland
- 2010-2015 Thiago Nascimento DDS, MSc: Neuroimaging in Chronic TMD Pain
Project Awarded by National Institutes of Health - NIDCR R56
Third Poster Awards in Clinical Research and Public Health at Research
Day 2016 U-M School of Dentistry
Travel Award for the International Association of Study of Pain, 14th
World Congress of Pain. Milan, Italy, 2012.
Travel Award for the International Headache Congress, Boston, MA,
2013.
Primary mentor: Alexandre DaSilva

October 15th, 2019

Alexandre F. DaSilva, DDS, DMSc
Curriculum Vitae

- 2013-2016 Currently: Research Investigator, Headache and Orofacial Pain Effort, University of Michigan School of Dentistry
Xiaosu Hu MSc, PhD: Optical Neuroimaging of Dental Pain (fNIRS Methods)
Engineering
Project Awarded by Colgate-Palmolive
Project Awarded by fNIRS pilot grant award – Center for Human Growth and Development, University of Michigan
Co-mentors: Alexandre DaSilva/Ioulia Kovelman
Currently: Research Investigator – Center for Human Growth and Development – University of Michigan
- 2016-present Hassan Jassar, PhD (Postdoctoral fellow – Molecular Neuroimaging)
Project Awarded by National Institutes of Health - NINDS R01
Primary mentor: Alexandre DaSilva
- 2015-2018 Chelsea Cummiford, BS
PhD candidate – UM Neuroscience Graduate Program
First Poster Awards in Clinical Research and Public Health at Research Day 2016 U-M School of Dentistry
Brain Networks in Chronic Pain
Primary Mentors: Richard Harris & George Mashour
Thesis Committee Member: Alexandre DaSilva
- 2016-2017 Isaac Dripps
PhD candidate – UM Pharmacology Graduate Program
The Effects of RGS4 on Delta Opioid Receptor-mediated Behaviors in Mice
Primary Mentor: Emily M Jutkiewicz
Thesis Committee Member: Alexandre DaSilva
- 2019-present DaJung Kim, PhD (Postdoctoral fellow – Functional pain neuroplasticity)
Project supported by National Institutes of Health - NIDCR R01
Primary mentor: Alexandre DaSilva
- 2019-present Manoel Lim, PhD (Postdoctoral fellow – Functional pain connectivity)
Project supported by National Institutes of Health - NIDCR R01suppl
Primary mentor: Alexandre DaSilva

Special Instructional Materials

- 2005 **DaSilva AF** and Acquadro MA. Chapter: “*Orofacial Pain*” in the handbook: *The Massachusetts General Hospital Handbook of Pain Management – Third Edition*. Editor Dr. Jane Ballantyne, Lippincott Williams & Wilkins
- 2012 University of Michigan Pain Mobile Technology
<http://www.ns.umich.edu/new/multimedia/videos/20960-new-mobile-app-helps-migraine-sufferers-track-and-analyze-pain>
- 2014 3D-Anatomy Dissection
<http://www.ns.umich.edu/new/multimedia/videos/20960-new-mobile-app-helps-migraine-sufferers-track-and-analyze-pain>
- 2015 Anatomage Table, funded through *Transforming Learning for a Third Century Initiative*, a collaboration between the U-M Library and Schools of Kinesiology, Dentistry (Co-PI: Alex DaSilva) and Nursing.

October 15th, 2019

Alexandre F. DaSilva, DDS, DMSc
Curriculum Vitae

- 2016 Role: Co-PI with Gross M (Kinesiology) & Alexander L (Library) -
Awarded by the University of Michigan Provost's Office
Second Course – Anatomage Technology based on the Transforming
Learning for a Third Century (TLTC) award: “Virtual Dissection:
Improving Student Learning with the Anatomage Table” (2016-2017)

Scientific Video Articles and Lectures

- 2011 **DaSilva AF**, Volz M.S., Bikson M., Fregni F. Electrode Positioning and
Montage in Transcranial Direct Current Stimulation. *J Vis Exp*. 2011 May
23;(51).
- 2013 Villamar MF, Volz MS, Bikson M*, Datta A, **DaSilva AF***, Fregni F*.
Technique and considerations in the use of 4x1 ring high-definition
transcranial direct current stimulation (HD-tDCS). *J Vis Exp*. 2013 Jul
14;(77):e50309. **Equal contribution*.
- 2014 **DaSilva AF***, Nascimento TD*, Love T*, DosSantos MF, Martikainen
IK, Cummiford CM, DeBoer M, Maslowski E, Smith YR, Zubieta JK.
3D-Neuronavigation In Vivo Through a Patient's Brain During a
Spontaneous Migraine Headache. *J Vis Exp*. 2014 Jun 2;(88)
PMID:24962460. **Equal contribution*.
- 2014 Video lecture for the Webinar Series: Virtual School of Computational
Science and Engineering (VSCSE: www.vscse.org), supported by the
National Science Foundation. <http://vimeo.com/93644921>

SERVICE

Administrative Appointments

- 2014-2018 Co-Director, Functional Near-Infrared Spectroscopy (fNIRS) laboratory,
Center for Human Growth and Development (CHGD)

Department Committees or Programs

- 2009-present Member, Neurobiology Group, University of Michigan School of
Dentistry
- 2013 Member, Department of Biologic and Material Sciences Faculty Search
Committee

School Committees or Programs

- 2009 Member, Department of Periodontics and Oral Medicine Faculty Search
Committee
- 2010-2013 Member, University of Michigan School of Dentistry Admissions
Committee
- 2010-2013 Member, Clinical Neuroscience Program, New DDS curriculum,
University of Michigan School of Dentistry
- 2010-2013 Member, Michigan Center for Oral Health Research (MCOHR) Steering
Committee
- 2010-2013 Participation in the Research Preview poster session to introduce students
to the breadth of research conducted at the School of Dentistry
- 2010-present Chair, Patient with Orofacial Pain and Masticatory Dysfunction
Committee, New DDS curriculum for Pain, University of Michigan
School of Dentistry
- 2012-2014 Member, Nominations and Elections Committee, University of Michigan
School of Dentistry
- 2017 Search Committee for the UMSoD Director of Communications and

October 15th, 2019

Alexandre F. DaSilva, DDS, DMSc
Curriculum Vitae

- Marketing
2018-present Member, UMSoD Learning Health Systems Task Force
2018-present Member of the Committee on Appointments, Promotion, and Tenure (APT)
2019-present Member, UMSoD Learning Health System Committee

University of Michigan Committees

- 2013 Member, Future of Visualization Committee
2014 Member, Search Committee for the new Director of the Digital Media Commons (DMC)
2014 Co-leader, application entitled “*Virtual Dissection: Improving Student Learning with the Anatomage Table*” to the Transforming Learning for a Third Century (TLTC) Award
2015-2017 Member, Center for Human Growth and Development Steering Committee
2016 Invited by the Associated Vice-President for Research, Health Sciences, University of Michigan, Dr. J. Brian Fowlkes, to join the planning meeting for the University’s new fMRI Center
2016 Member, Search Committee for the new Duderstadt Center Director
2017-present Member of the U-M Augmented/Virtual/Mixed Reality Steering Committee
2018 Alternate Representative for the School of Dentistry at the U-M Faculty Senate Assembly

University of Michigan Administrative Duties

- 2014-2018 Co-Director of their Functional Near-Infrared Spectroscopy (fNIRS) laboratory, Center for Human Growth and Development (CHGD)
2015-2017 Steering Committee member for the Center for Human Growth and Development (CHGD)
2018-2021 Dentistry Alternate Representative to the Faculty Senate Assembly

National/International Committees

- 2008 Chair, IADR Oral Session: Keynote Address and Thirty Years of Orofacial Pain Research. IADR General Session, Toronto.
2009 Chair, IADR Oral Session: Pathobiology of Orofacial Pain and Disorders. IADR General Session, Miami, FL.
2010 Chair, IADR Oral Session: Orofacial Pain Mechanism: Human and Animal Studies. IADR General Session, Barcelona, Spain.
2013 Member, IASP Neuromodulation SIG Meetings & Symposia
2013 IARPA - Invited for a private conference call with one of Program Directors and contractors to apply and develop a potential project with the Intelligence Advanced Research Projects Activity (IARPA). The department invests in high-risk, high-payoff research programs that have the potential to provide the United States with an overwhelming intelligence advantage over future adversaries. (www.iarpa.gov/).
2016-2017 Treasurer – Michigan Section of the American Association for Dental Research

October 15th, 2019

Alexandre F. DaSilva, DDS, DMSc
Curriculum Vitae

Clinical and Patient Care

Harvard University

- 1998-2002 TMD & Orofacial Pain Clinic, Massachusetts General Hospital
2003 Headache Clinic, Department of Internal Medicine/Harvard University,
Spaulding Rehabilitation Hospital
2007 TMD & Orofacial Pain Clinic, Massachusetts General Hospital – Clinical
Collaborator

University of Michigan School of Dentistry

- 2009 TMD & Orofacial Pain Clinic – Under supervision of Dr. Lawrence
Ashman

**Development and Deployment of Health Technologies for Clinical and
Patient Care**

- 2012- Co-Creator, *PainTrek* (Now GeoPain - Provisional Patent Application
Filed by TechTransfer)
2014- Co-Founder, *MoxyTech* LLC (University of Michigan Start-up)
2017- Chief Science Office, MoxyTech Inc.

Interdepartmental

- 2009 Invited for the Michigan Institute of Clinical Health Research (MICHR)
Mentoring Workshop Session: *“Issues in mentoring – Identifying and
dealing with common problems”*
2009 Invited by the Department of Neurology at University of Michigan to
evaluate a MD candidate for a faculty position in the field of trigeminal
pain research (basic science research)
2010 Invited by the Department of Neurology at University of Michigan to meet
the Guest Speaker for the Neurology Research Seminar, Dr. Michael S
Gold PhD, Associated Editor Journal of Neuroscience, and Associated
Professor, University of Pittsburgh, PA
2010 Invited by the Depression Center at University of Michigan to meet the
Invited Speaker for the Depression Center Colloquium, Dr. Andrew Miller
MD, Professor of Psychiatry, Emory University Medical School
2011 Invited by the Department of Neurology at University of Michigan to meet
the Guest Speaker for the Neurology Research Casey Lecture, Dr. Jon
Levine MD, PhD, Professor of Medicine, Oral & Maxillofacial Surgery
and Rheumatology, University of California San Francisco
2011 Invited by the Department of Psychiatry at University of Michigan to meet
the Guest Speaker for the Depression Center Colloquium Series, Dr. Linda
Watkins, Ph.D., Professor, Department of Psychology; President's
Teaching Scholar; and Director, Interdepartmental Neuroscience Ph.D.
Program, University of Colorado.
2012 Invited by the Department of Neurology at University of Michigan to meet
the Guest Speaker for the Neurology Research Casey Lecture, Dr. Peter
Goadsby MD, PhD, Professor of Neurology, University of California San
Francisco.
2013 Invited by the Department of Neurology at University of Michigan to
evaluate a MD candidate for a faculty position in University of Michigan
Headache Clinic.
2014 Member, Search Committee for the new Director of the Digital Media
Commons (DMC), University of Michigan.

October 15th, 2019

Alexandre F. DaSilva, DDS, DMSc

Curriculum Vitae

2014-2016 Monthly meetings with the previous Associated Vice-President for Research, Health Sciences, University of Michigan, Dr. J. Brian Fowlkes for advancement of the functional Near-Infrared Laboratory, which I Co-Director, at the Center for Human Growth and Development.

Grant Reviewer

2009 Center for Integration of Medicine and Innovative Technology (CIMIT), Massachusetts General Hospital, Harvard University, Boston.

2012-2013 Lewis Application to Neurological Foundation of New Zealand.

2012, 2014 Department of Defense (DOD), Peer Review Medical Research Program (PRCRP) for Department of Defense Congressionally Directed Medical Research Programs (CDMRP): Chronic Migraine and Post Traumatic Headache Panel.

2013-2016 Department of Veterans Affairs (DVA): The Rehabilitation Research and Development Service Spinal Cord Injury and Pain panel.

2014 Ad hoc reviewer, Veterans Affairs Ann Arbor Healthcare System for brain stimulation proposals in mental health

2014 Expert reviewer, Veterans Affairs Ann Arbor Healthcare System for safety information once per quarter for two brain stimulation research projects in mental health

2015 National Institute of Health, Neurological, Aging and Musculoskeletal Epidemiology Study Section

2015 National Institute of Health: Special Emphasis Panel/Scientific Review Group 2016/01 ZRG1 SBIB-V (02) M

2015 Department of Defense (DOD): Peer Review Medical Research Program (PRCRP) for Department of Defense Congressionally Directed Medical Research Programs (CDMRP): Neurological Disorders (ND).

2016 National Institute of Health – President Obama’s BRAIN Initiative (Brain Research through Advancing Innovative Neurotechnologies) RFA entitled “Non-Invasive Neuromodulation - Mechanisms and Dose/Response Relationships for Targeted CNS Effects

2017 (Co)Chair - Department of Veterans Affairs (DVA): The Rehabilitation Research and Development Service Spinal Cord Injury and Pain panel (Winter Session)

2017 National Institute of Health- “Training and Education” review meeting held by the National Center for Complementary and Integrative Health (NCCIH / NIH). The study section includes fellowship (F31, F32), career development (Ks), scientific meeting support (R13), and Academic Research Enhancement Award (AREA; R15) applications.

2017 National Institute of Health: Somatosensory and Chemosensory Systems (SCS)

2017- Chair - Department of Veterans Affairs (DVA): The Rehabilitation Research and Development Service Spinal Cord Injury and Pain panel (Summer Session)

2018- Department of Veterans Affairs (DVA): Chair, Rehabilitation Research & Development (RRD) Center and Rehabilitation Enhancement Award Programs (REAPS)

2018- Department of Veterans Affairs (DVA): Chair, The Rehabilitation Research and Development Service Spinal Cord Injury and Pain panel (Summer Session)

October 15th, 2019

Alexandre F. DaSilva, DDS, DMSc
Curriculum Vitae

2019- Department of Veterans Affairs (DVA): Chair, The Rehabilitation Research and Development Service Spinal Cord Injury and Pain panel (Summer Session)

CONTINUING EDUCATION COURSES TAUGHT

Harvard University

2011, 2012 Invited Lecturer, CE course: Clinical, Assessment, and Intervention Updates in Neurorehabilitation

University of Michigan School of Dentistry

2013 Invited Lecturer, CE Course: Tech-innovations in Orofacial Pain Research and Treatment

2018 Invited Lectures, CE Course: Reducing Opioid Abuse: Mechanisms and Strategies for Safer and More Effective Pain Management

GRANT SUPPORT

Current

1R01AT010060-01 (NIH-NCCIH)

DaSilva (Co-PI)

9/1/2019 - 8/31/2024

\$3,637,418.00

“Explosive Synchronization of Brain Network Activity in Chronic Pain”, with the Anesthesiology Department (Co-PIs: Richard Harris, UncCheol Lee)

Fibromyalgia (FM) is a common chronic pain condition whose pathology is largely unknown. Existing research suggests that the brain may play a significant role in pain expression in these individuals. Although untested, an imbalance in excitatory and inhibitory brain activity may lead to an unstable neural network sensitized to external stimuli and this may lead to pain in FM. Hypersensitive and unstable networks have been observed in various physical and biological systems, and in such networks, small perturbations can give rise to explosive and global propagation of activity over the system. One underlying mechanism of hypersensitive systems, called explosive synchronization (ES), has been introduced and actively studied over the past decade. ES is a phenomenon wherein small increases in stimulation strength applied to a network, can lead to an abrupt state transition through global network synchronization. Here we hypothesize that ES may be an underlying mechanism of the hypersensitivity of the FM brain, and a targeted approach with non-invasive brain stimulation may reduce conditions or ES and subsequent pain in some of these patients. Our pilot electroencephalogram (EEG) data showed that the FM brain displays network configurations primed for ES. Individuals with more clinical pain had increased ES conditions within their brain networks. Furthermore, when these same patients experienced an increase in pain following an experimental pressure pain stimulus applied to the thumb, they exhibited a concomitant increase in ES. Understanding how the development of hypersensitivity within the brain can lead to chronic pain is an unknown in the medical field and is the major theme of this proposal. We posit that finding the underlying mechanism of hypersensitivity in the FM brain could lead to a more fundamental understanding of the central nervous system sensitization seen in this pain state (and potentially others), and targeting this phenomenon might be an effective new treatment strategy. To achieve this goal, we propose three aims based on interdisciplinary approaches of neuroscience, physics, medicine, and mathematics: Aim 1. Demonstrate that individuals with FM, as compared to pain free controls, display brain characteristics of ES as assessed with EEG. Aim 2. Computationally model the underlying mechanism(s) of the hypersensitive FM

October 15th, 2019

Alexandre F. DaSilva, DDS, DMSc
Curriculum Vitae

brain and identify key target regions that might reduce brain hypersensitivity. Aim 3. Test the ability of high definition transcranial direct current stimulation (HD-tDCS) at discrete network regions to reduce conditions of ES within the brain.

R01-NS094413 (NIH-NINDS) DaSilva (PI)
9/30/2015 – 8/31/2020 (2.4 CM) \$2,208,393.00
“Investigation and Modulation of the Mu-Opioid Mechanisms in Migraine (In Vivo)”

This R01 submission is the evolution of my successful awarded NIH-NINDS K23 project (\$779,387) to address the molecular pathophysiology of migraine in vivo, a disorder that impairs the life of more than 21.8 million Americans at working age, with annual direct economic burden of \$1billion. The main goals of our study are: First, to exploit the μ -opioidergic mechanisms in migraine patients and allodynia; Second, to determine whether 10 daily sessions of primary motor cortex (M1)-tDCS have a modulatory effect on acute and chronic pain measures in episodic migraine patients; and Third, to investigate whether repetitive active M1-tDCS induces/reverts μ OR BPND changes in the descending inhibitory system, and whether those changes are correlated with migraine pain measures.

U01-DE025633 (NIH-NIDCR) DaSilva (PI)
8/1/2016 – 7/31/2021 (2.4 CM) \$2,208,393.00
“Investigation and Modulation of the Mu-Opioid Mechanism in Chronic TMD (in vivo)”

This project is being converted to an U01 cooperative agreement mechanism (same length and funds). This study is the consolidation of my successful awarded NIH-NIDCR R56 ongoing project (\$773,354). Chronic temporomandibular joint disorders (TMD) represent clinical problems in which empirical treatments offer uncertain relief for a large number of patients. This proposed research utilizes a 3-step process: First, we will determine μ -opioid mechanisms mediating individual experiences in acute (experimental) and chronic (clinical) TMD pain states; Second, we will investigate the modulatory effect of 10 repetitive active and placebo tDCS sessions over the primary motor cortex (M1) on acute and chronic TMD pain measures; and Third, we will study whether repetitive M1-tDCS induces or reverts μ OR BPND changes in the thalamus, and other pain-related structures, and if those changes are associated with modulation on acute and chronic TMD pain measures.

U01-DE025633 (NIH-NIDCR) – Suppl. \$200,000.00
10/2018 – 10/2019
Initial studies from our NIH-NIDCR project using positron emission tomography (PET) with [¹¹C]carfentanil, a selective radiotracer for μ -opioid receptor (μ OR), have demonstrated that there is a decrease in μ OR availability (non-displaceable binding potential BPND) in the brains of TMD patients during masseteric pain compared to healthy controls. μ -opioid neurotransmission is arguably one of the mechanisms most centrally involved in pain regulation and experience. Moreover, recent studies have also implicated several genetic variations as possible risk factors for chronic TMD, especially catechol-O-methyltransferase (COMT). COMT is associated with the metabolism of catecholamines⁸, and its polymorphism also modulates the μ -opioid activity involved in acute pain perception and its analgesia⁹. In fact, in our preliminary study, TMD patients with specific COMT gene variations demonstrated during the masseteric challenge more pain sensitivity and, interestingly, a transitory increase of endogenous μ -opioid

October 15th, 2019

Alexandre F. DaSilva, DDS, DMSc
Curriculum Vitae

neurotransmission in their parahippocampus. These findings suggested a dysfunctional endogenous μ -opioid limbic function in chronic TMD patients that is potentially modulated by COMT polymorphism. The overall goal of this project is to evaluate such relationship between genetics and μ -opioid receptor nondisplaceable binding potential (μ OR BPND) in TMD patients, as well as pain sensitivity measured by a masseteric pain challenge.

Under Review

DE029388 (STTR)

04/01/2020 - 03/31/2021.

Inc)

PI:Maslowski (MoxyTech,

UMich Investigator: DaSilva
\$149,758.72

“Clinical Augmented Reality and Artificial Intelligence to Objectively Detect and Map Pain”

For many years clinicians have been seeking for objective pain assessment solutions via neuroimaging techniques, focusing on the brain to detect human pain. Unfortunately, most of those techniques are not applicable in the clinical environment or lack accuracy. In this STTR Phase I project, we will test the feasibility of a mobile neuroimaging-based clinical augmented reality (AR) and artificial intelligence (AI) framework, CLARAI, for objective pain detection and also localization direct from the patient’s brain in real-time. We will use a portable optical neuroimaging technology, functional near-infrared spectroscopy (fNIRS), to gauge cortical activity during spontaneous/evoked acute clinical dental pain and its relief in a clinical dental pain emergency session, and 1-week follow up. The neuroimaging data will be transmitted in real-time to an AR device, HoloLens, allowing visualization of the ongoing cortical activity on a 3D brain template virtually plotted on the patients’ head during clinical consult. In addition, the data will be decoded using a neural network (NN) based AI algorithm to classify hemodynamic response data into pain and no-pain brain states in real-time. We will use several important metrics to evaluate the predictive power of our AI algorithm, such as classification accuracy and F1 score (precision-recall), area under the ROC curve, as well as positive and negative likelihood ratio. In summary, Our **initial goal** in this STTR Phase I is to expand CLARAI platform to objectively detect and map ongoing/provoked pain and its relief in a clinical dental pain emergency session. As a **long-term goal**, this initial outcome will serve as a scalable platform to other dental and medical conditions using an innovative and feasible neuroimaging-based AR/AI concept where it is most needed: in the clinical and academic medical/dental environments, including Emergency and Special Needs Clinics. This project is a multi-collaborative business effort involving MoxyTech and Headache & Orofacial Pain Effort (H.O.P.E.) Laboratory, University of Michigan School of Dentistry. We will address our initial objectives by pursuing: **Aim 1:** we will validate the CLARAI platform for subjects with symptomatic irreversible pulpitis with ongoing emergency dental pain, its mild evoked stimulation (percussion), and immediate relief by local anesthesia. **Milestone:** Objective quantification and mapping of pain related to irreversible pulpitis and its resolution direct from the patients’ brains. This will be based on patients’ S1 and PFC activation and connectivity during emergency session at UMSoD general and endodontic clinics. **Aim 2.** To objectively measure and localize cortical functional changes and associated features in the clinical environment at 1 week follow-up. **Milestone:** Optimize emergency endodontic treatment service and training, and its predicted response.

Past

October 15th, 2019

Alexandre F. DaSilva, DDS, DMSc
Curriculum Vitae

Harvard School of Dental Medicine, Dean's Scholar Program DaSilva (PI)
2004-2005 \$50,000

The Harvard School of Dental Medicine Dean's Scholar Program provided protected time for outstanding individuals to develop and refine skills necessary for future success in academic and research. My program for a Dean's Scholar consisted of four days a week in pain neuroimaging research and one day teaching, patient care, or other related activity.

Harvard School of Dental Medicine, Dean's Scholar Program
DaSilva (PI)

2005-2006 \$25,000

The Harvard School of Dental Medicine Dean's Scholar Program provided protected time for outstanding individuals to develop and refine skills necessary for future success in academic and research. (Competitive 2nd year – 50% extension)

K12-Harvard University & Forsyth Institutional/Faculty Development Program

(NIH-NIDCR) DaSilva (PI)
2006-2007 \$75,000

“Neuroplastic-related changes in the sensorimotor cortex of chronic TMD patients”

The main goal of this K12 project is to provide Dr. DaSilva further mentoring and training necessary to establish an independent scientific and academic career. In this project, we will integrate two anatomical MRI techniques for the study of cortical neuroplasticity in chronic temporomandibular joint disorders (cTMJD). The fact that many therapeutic modalities, which focus on peripheral mechanisms, do not provide relief for these treatment-resistant patients raises the possibility that the cause for the chronicity of this debilitating disorder may lie in the brain itself, and possibly in the neuroplastic-associated changes of the cortex (e.g., somatosensory, motor and dorsolateral prefrontal cortices). In this K12 project, we will investigate changes in the cortical thickness and neurotransmitter levels in the cortex of cTMJD patients that could be responsible for that overactivation on sensory, motor and effective-motivational function. The career and research plan described in this project is an important step in advancing Dr. DaSilva knowledge in different aspects of refractory trigeminal pain and associated neuromechanisms. The project has significant clinical relevance, and has the support of an array of mentors, collaborators and institutions.

DANA Foundation's Brain and Immuno-Imaging Award DaSilva (PI)
2009-2013 \$200,000

“Imaging neurotransmitter receptors in migraine”

PET and MRI imaging in people who get migraine headaches and in healthy volunteers to identify factors that may be correlated with the severity of migraine attacks.

MICHR Clinical Trial Planning Program

\$50,000

& UL1RR024986 – CTSA High-Tech Funding Grant

\$40,000

2009-2013 DaSilva (PI)

“Brain as a Research and Therapeutic Target in Trigeminal Neuropathic Pain”

October 15th, 2019

Alexandre F. DaSilva, DDS, DMSc
Curriculum Vitae

The main goal of this Clinical Trial Planning Proposal is to integrate neuroimaging techniques with non-invasive brain stimulation for the investigation and modulation of faulty neuromechanisms in patients with chronic trigeminal neuropathic pain (TNP).

MICHR Clinical Trial Planning Program \$50,000
CTSA High-Tech Funding Grant \$40,000
2009-2013 DaSilva (Co-PI)

“Effects of Direct Transcranial Current Stimulation on Central Neural Pain Processing in Fibromyalgia”

The main goal of this Collaborative Proposal is to investigate biochemical, functional, and structural neuroimaging changes following non-invasive brain stimulation in patients with chronic widespread pain: fibromyalgia (FM).

Co-PI: Harris R

K23 NS062946 (NIH-NINDS) DaSilva (PI)
2009-2014 \$779,387

“Brain as a Research and Therapeutic Target in Migraine”

The main goal of this K23 project is to provide Dr. DaSilva advanced mentoring and training on molecular neuroimaging, technology only available in selected institutions, to establish a solid independent scientific and academic career. In this project, we will integrate anatomical MRI techniques with positron emission tomography (PET) for the study of structural and molecular cortical neuroplasticity in migraine, as well as the allodynic mechanisms associated with it. The fact that many therapeutic modalities do not provide relief for these treatment-resistant patients raises the possibility that the cause for the chronicity of these debilitating disorders may lie in the brain itself, and possibly in the dysfunction of specific cortical and subcortical areas (e.g. SI, periaqueductal gray matter) and modulatory mechanisms (e.g. opioidergic mechanisms). Recent studies with PET using a selective mu-opioid receptor (MOR) radiotracer, have shown varied pattern of reduced MOR binding potential (BP) depending on the disorders investigated (e.g. fibromyalgia). These findings represent either higher occupation of MOR by endogenous ligands or loss of opioid receptors. Interestingly, our last results suggest that such molecular changes in refractory pain parallel cortical thickness and diffusional changes in areas related to pain perception and modulation in episodic migraine patients. Therefore, we will test the hypothesis that migraine is sustained by mal-adaptive changes at multiple levels of the cortex by pursuing the following Aims: 1) To investigate MOR-BP changes in chronic trigeminal pain patients compared to healthy controls; 2) To demonstrate that frequency of the headache attacks and severity of cutaneous allodynia levels in migraineurs are correlated with MORBP. 3) To investigate whether MORBP levels in the PAG of migraineurs are associated with changes in the gray matter thickness changes in cortical areas associated with pain perception and modulation. **RELEVANCE:** As a career goal, this multidisciplinary training project will help to establish my research as an independent scientist applying PET and MRI-based neuroimaging in the study of cellular and molecular neuroplastic-associated mechanisms in migraine, as well as cutaneous allodynia. This project is expected to expand our knowledge on cortical migraine pathophysiology, and possibly novel therapeutic targets in the brain.

CRLT-University of Michigan Academic Advancement DaSilva (Co-Inv)
2010-2012

“Developing a Thematic Core for Neurobiology in Oral Health and Disease in the DDS Curriculum” (PIs: C. Mistretta & C. Krull – BMS Department)

October 15th, 2019

Alexandre F. DaSilva, DDS, DMSc
Curriculum Vitae

Migraine Research Foundation

2011-2014

DaSilva (PI)
\$50,000

"Endogenous Opioid Mechanisms in Chronic Migraine"

We propose to acquire primary data to examine the effects of chronic migraine (CM) in the neuroplasticity of the gray and white matter, and its influence on pain psychophysics and neurotransmitter function of the endogenous opioid system, arguably one of the main mechanisms associated with chronic pain in human subjects.

Colgate-Palmolive

2011-2014

DaSilva (PI)
\$24,000

"Investigation of neuromechanisms in intraoral pain"

Clinical and neuroimaging studies with pain in our center and others suggest the presence of varied patterns of pain distribution and brain activation depending on how it is investigated, and most importantly the analgesic and placebo mechanisms of therapies applied. Based on this knowledge we propose to define primarily two novel research protocols for dentine hypersensitivity: 1) Clinical research – Oral and Craniofacial Pain Map, Questionnaire and Quantitative Sensory Testing (QST); 2) Neuroimaging research – Brain as a Research Target in Dentine Hypersensitivity

fNIRS Pilot Grant Award

Center for Human Growth & Development

2012-2013

DaSilva (PI)
\$2,000

"Optical Neuroimaging of Dental Hypersensitivity"

Project to investigate the cortical sensory (S1) and emotional-cognitive (DLPFC) mechanisms of intraoral pain by the use of fNIRS and MRI based technologies.

MCubed Award–University of Michigan

PI)

2013-2014

DaSilva (Co-PI)
\$60,000

"Non-invasive Neuromodulation of the Brain as an Adjuvant in Cancer Pain Management."

To investigate and modulate cortical mechanisms in head & neck cancer pain management.

Co-PIs: Danciu T, Rozek L

Transforming Learning for a Third Century (TLTC)

PI)

2015-2016 (.24 CM)

DaSilva (Co-PI)
\$50,000

"Virtual Dissection: Improving Student Learning with the Anatomage Table"

The Anatomage table is a new technology that will enable students to actively explore human anatomy, conduct their own virtual dissections, and to create and label their images of anatomical structures. The Table comes with both full body male and female gross anatomy. The images are created from frozen cadavers, illustrating the accurate anatomical realism of a living human. The virtual body can be cut anywhere in anyway, revealing the details of the internal structures. With their fingers, users can rotate the virtual body and cut in any direction.

In this project, we propose to create new engaged learning activities using the Anatomage Table for anatomy students in the School of Kinesiology and the School of Dentistry. Rather than using the Anatomage Table as a teaching tool in the classroom setting only,

October 15th, 2019

Alexandre F. DaSilva, DDS, DMSc
Curriculum Vitae

we also propose to use it as a learning tool outside of the classroom. We expect to set anatomical learning objectives for students that will require them to explore anatomy, conduct virtual dissections, discover structures and image them. We will also provide them with opportunities for guided practice with dissection-based quizzes.

Co PIs: Gross M (Kinesiology) & Alexandr L (Library)

R56 DE022637-01 (NIH-NIDCR)

DaSilva (PI)

2013-2015 (1.9 Calendar Months [CM])

\$773,354

“Brain as a Research and Therapeutic Target in Chronic TMD”

Although MRI-based techniques have provided insights into some neuroplastic mechanisms of TMD in humans, many questions regarding its molecular mechanisms *in vivo* are still unanswered. One of the main important is: how are endogenous μ -opioid mechanisms in the brain, known to be centrally involved in pain regulation, affected by acute and chronic TMD pain? The understanding of this process is crucial to determine the mechanisms engaged in the persistence and, most important, the alleviation of TMD. The goal of this project is to determine μ -opioid mechanisms mediating individual experiences in acute (experimental) and chronic (clinical) TMD pain states

PUBLICATIONS

Published Articles: Peer-Reviewed Journals

1. **DaSilva AF**, Becerra L, Makris N, Strassman A, Gonzalez, RG, Geatrakis N, Borsook D. Somatotopic activation in the human trigeminal pain pathway. J Neurosci. 2002 Sep 15;22(18):8183-8192.
2. **DaSilva AF**, Tuch DS, Wiegell MR, Hadjikhani N. A Primer on Diffusion Tensor Imaging of Anatomical Substructures. Neurosurg Focus, 2003 Jul 15;15(1):E4.
3. Borsook D*, **DaSilva AF***, Ploghaus A, Becerra L*. Specific and somatotopic fMRI activation in the trigeminal ganglion by Brush and Noxious Heat. J Neurosci. 2003 Aug 27;23(21): 7897-7903. **Equal contribution*.
4. **DaSilva AF**, Shaefer J, Keith DA. The Temporomandibular Joint: Clinical and Surgical Aspects. Neuroimag Clin N Am. 2003 Aug;13(3):573-82. (invited review article)
5. Borrás MC, Becerra L, Ploghaus A, Gostic JM, **DaSilva AF**, Gonzales RG, Borsook D. fMRI Measurement of CNS Responses to Naloxone Infusion and Subsequent Mild Noxious Thermal Stimuli in Healthy Volunteers. J Neurophysiol. 2004 Jun; 91(6):2723-33.
6. Granziera C*, **DaSilva AF***, Snyder J, Tuch DS, Hadjikhani N. Anatomical Alterations of the Visual Motion Processing Network in Migraine with and without Aura. PLoS Med. 2006 Oct 17;3(10):e402. **Equal contribution*.
7. **DaSilva AF**, Granziera C, Tuch D, Snyder J, Hadjikhani N. Interictal Alterations of the Trigeminal Somatosensory Pathway and PAG in Migraine. Neuroreport. 2007 Mar 5;18(4):301-5. (Article selected for the front cover of the issue)
8. **DaSilva AF**, Goadsby PJ, Borsook D. Cluster Headache: A Review of Neuroimaging Findings. Curr Pain Headache Rep. 2007 Apr;11(2):131-6. (invited review article).
9. **DaSilva AF**, Granziera C, Snyder J, Hadjikhani N. Thickening in the Somatosensory Cortex of Migraine Patients. Neurology. 2007 Nov 20;69(21):1990-5.
10. **DaSilva AF***, Becerra L*, Pendse G, Chizh B, Tulley S, Borsook D.

October 15th, 2019

Alexandre F. DaSilva, DDS, DMSc
Curriculum Vitae

- Colocalized Functional and Structural Changes in the Cortex of Patients with Trigeminal Neuropathic Pain. *PLoS One*. 2008;3(10):e3396. Epub 2008 Oct 16. **Equal contribution*.
11. Zaghi S*, **DaSilva AF***, Acar M, Lopes M, Fregni F. One-Year rTMS Treatment for Refractory Trigeminal Neuralgia. *J Pain Symptom Manage*. 2009 Oct;38(4):e1-5. Epub 2009 Aug 26. **Equal contribution*.
 12. DosSantos MF and **DaSilva AF**. Functional and Structural Cortical Neuroplasticity in Trigeminal Neuropathic Pain. *J Pain Manage*. 2011;4(3):299-313. (invited review article; Special Issue on Neural Plasticity in Chronic Pain).
 13. **DaSilva AF**, Volz MS, Bikson M, Fregni F. Electrode Positioning and Montage in Transcranial Direct Current Stimulation. *J Vis Exp*. (JoVE) 2011 May 23;(51).
 14. **DaSilva AF** and DosSantos MF. The Role of Sensory Fiber Demography in Trigeminal and Postherpetic Neuralgias. *J Dent Res*. 2012 Jan;91(1):17-24. Epub 2011 Jun 13. (invited review article).
 15. **DaSilva AF**, Mendonca ME, Zaghi S, Lopes M, Dos Santos MF, Egilius EL, Badjwa Z, Datta A, Bikson M, Fregni F. tDCS-induced analgesia and electrical fields in pain-related neural networks in chronic migraine. *Headache*. 2012 Sep;52(8):1283-95. Epub 2012 Apr 18.
 16. DosSantos MF, Martikainen IK, Nascimento TD, Love T, DeBoer M, Maslowski E, Monteiro AA, Vincent MB, Zubieta JK, **DaSilva AF**. Reduced Basal Ganglia μ -Opioid Receptor Availability in Trigeminal Neuropathic Pain: A Pilot Study. *Mol Pain*. 2012 Sep 24;8:74.
 17. DosSantos MF, Love T, Martikainen IK, Nascimento TD, Fregni F, Cummiford CM, DeBoer M, Zubieta JK, **DaSilva AF**. Immediate effect of tDCS on the μ -Opioid system of a chronic pain patient. *Front Psychiatry*. 2012 Nov 2;3:93
 18. Villamar MF, Volz MS, Bikson M*, Datta A, **DaSilva AF***, Fregni F*. Technique and considerations in the use of 4x1 ring high-definition transcranial direct current stimulation (HD-tDCS). *J Vis Exp*. 2013 Jul 14;(77):e50309. **Equal contribution*
 19. Nascimento TD, DosSantos MF, Danciu T, DeBoer M, Holsbeeck H, Lucas S, Aiello C, Khatib L, Bender MC, UMSoD (Under)Graduate Class of 2014, Zubieta JK, **DaSilva AF**. Real-Time Sharing and Expression of Migraine Headache Suffering on Twitter: A Cross Sectional Infodemiology Study. *J Med Internet Res*. 2014 Apr 3;16(4).
 20. **DaSilva AF***, Nascimento TD*, Love T*, DosSantos MF, Martikainen IK, Cummiford CM, DeBoer M, Maslowski E, Smith YR, Zubieta JK. 3D-Neuronavigation In Vivo Through a Patient's Brain During a Spontaneous Migraine Headache. *J Vis Exp*. 2014 Jun 2;(88). PMID:24962460. **Equal contribution*.
 21. Schambra HM, Bikson M, Wager TD, DosSantos MF, **DaSilva AF**. It's all in your head: reinforcing the placebo response with tDCS. *Brain Stimul*. 2014 Jul-Aug;7(4):623-4. PMID: 24810955
 22. **DaSilva AF**, Nascimento T, DosSantos MF, Zubieta JK. Migraine and the Mu-Opioidergic System – Can We Directly Modulate it? Evidence from Neuroimaging studies. *Curr Pain Headache Rep*. 2014 Jul;18(7):429. PMID: 24842566 (invited review article)
 23. **DaSilva AF**, Nascimento T, DosSantos M, Lucas S, Van Holsbeeck H, DeBoer M, Maslowski E, Love T, Martikainen I, Koeppe R, Smith Y, Zubieta JK. μ -Opioid activation in the prefrontal cortex in migraine attacks – brief report I. *Ann Clin Transl Neurol*. 2014 1(6): 439-444
 24. Nascimento T, DosSantos M; Lucas S; Van Holsbeeck H, DeBoer M, Maslowski

Alexandre F. DaSilva, DDS, DMSc
Curriculum Vitae

- E, Love T, Martikainen I, Koeppel R, Smith Y, Zubieta, JK, **DaSilva AF**. μ -Opioid activation in the midbrain during migraine allodynia – brief report II. Ann Clin Transl Neurol. 2014;1(6) 445-450. PMID: PMC3522528
25. DosSantos MF, Martikainen IK, Nascimento TD, Love T, DeBoer MD, Zubieta JK, **DaSilva AF**. Building up Analgesia in Humans via the Endogenous μ -Opioid System by Combining Placebo and Active tDCS: A Preliminary Report. PLoS One. 2014 Jul 16;9(7). PMID: 25029273
26. DosSantos MF, Holanda-Afonso, RC, Lima RL, **DaSilva AF**, Moura-Neto V. The role of the blood brain barrier in chronic pain development and treatment. Front Cell Neurosci. 2014 Oct 8;8:302. PMID: 25339863 (invited review article)
27. Foerster BR, Nascimento TD, DeBoer M, Bender MA, Rice IC, Truong DQ, Bikson M, Clauw DJ, Zubieta JK, Harris RE, **DaSilva AF**. Excitatory and Inhibitory Brain Metabolites as Targets and Predictors of Effective Motor Cortex-tDCS Therapy in Fibromyalgia. Arthritis Rheumatol. 2015 Feb;67(2):576-81.
28. Donnell A, D Nascimento T, Lawrence M, Gupta V, Zieba T, Truong DQ, Bikson M, Datta A, Bellile E, **DaSilva AF**. High-Definition and Non-invasive Brain Modulation of Pain and Motor Dysfunction in Chronic TMD. Brain Stimul. 2015 Jun 23. PMID: 26226938
29. Racek AJ, Hu X, Nascimento TD, Bender MC, Khatib L, Chiego D Jr, Holland GR, Bauer P, McDonald N, Ellwood RP, **DaSilva AF**. Different Brain Responses to Pain and Its Expectation in the Dental Chair. J Dent Res. 2015 Jul;94(7):998-1003. PMID: 25904140
30. DaSilva AF, Truong DQ, DosSantos MF, Toback RL, Datta A, Bikson M. State-of-art neuroanatomical target analysis of high-definition and conventional tDCS montages used for migraine and pain control. Front Neuroanat. 2015 Jul 15;9:89. PMID: 26236199
31. Hu X, Arredondo M, Gomba M, Confer N, **DaSilva AF**, Johnson T, Shalinsky M, Kovelman I. A comparison of motion correction techniques applied to functional near-infrared spectroscopy data from children. J Biomed Optics. 2015 Oct;20(12). PMID: 26842987
32. DosSantos MF, Natália F, Toback RL, Carvalho AC, **DaSilva AF**. Potential mechanisms supporting the value of motor cortex stimulation to treat chronic pain syndrome. Frontiers in Neurosci. 2016 Feb 11;10:18. PMID26903788.
33. Cumminford CM, Nascimento TD, Foerster BR, Clauw DJ, Zubieta JK, Harris RE*, **DaSilva AF***. Changes in Resting State Functional Connectivity after Repetitive Transcranial Direct Current Stimulation Applied to Motor Cortex in Fibromyalgia Patients. Arthritis Res Ther. 2016 Feb 3;18(1):40. PMID: 26842987
**Equal contribution*
34. Hu XS, Fisher CA, MunZ SM, Toback R, Nascimento T, Bellile E, Rozek L, Eisbruch A, Worden FP, Danciu TE, **DaSilva AF**. Feasibility of Non-Invasive Brain Modulation for Pain Management in Patients Undergoing Chemoradiotherapy for Advanced Head and Neck Cancer. Frontiers in Human Neuroscience. 2016 Sep 27;10:466 PMID: 27729853
35. **DaSilva AF**, Nascimento T, DosSantos M, Heffernan J, Toback RL, Lucas S, Bellile EL, Maslowski E, Casey KL, Koeppel R, Smith Y, Zubieta, JK. Imbalance in Dopamine D2/D3 Neurotransmission in the Basal Ganglia During Spontaneous Migraine Attack and Allodynia in Vivo. Neurology, 2017 Apr 25;88(17):1634-1641.
36. Blecha JE, Henderson BD, Hockley BG, VanBrocklin HF, Zubieta JK, **DaSilva AF**, Kilbourn MR, Koeppel RA, Scott PJH, Shao X. An updated synthesis of [¹¹C] carfentanil for positron emission tomography (PET) imaging of the μ -
-

Alexandre F. DaSilva, DDS, DMSc
Curriculum Vitae

- opioid receptor. *J Labelled Comp Radiopharm*. 2017 Apr 17.
37. Hu XS, Racek AJ, Bellile E, Nascimento T, Bender MC, Toback RL, Burnett D, Khatib L, McMahan R, Ellwood RP, Kovelman I, DaSilva AF. "Brain functional changes before, during and after clinical pain". *J Dent Res*. 2018 May;97(5):523-529
 38. DosSantos MF, Moura BS, DaSilva AF. Reward Circuit Plasticity in Pain Perception and Modulation. *Frontiers in Psychiatry*. *Front Pharmacol*. 2017 Nov 21; 8:790.
 39. Pereira CM, Sehnem D, da Fonseca EO, Barboza HFG, de Carvalho ACP, DaSilva AFM, Moura-Neto V, DosSantos MF. 1. "miRNAs: Important Targets for Oral Cancer Pain Research." *Biomed Res Int*. 2017;2017:4043516. doi: 10.1155/2017/4043516. Epub 2017 Oct 30.
 40. Reckow J, Rahman-Filipiak A, Garcia S, Schlaefflin S, Calhoun O, DaSilva AF, Bikson M, Hampstead BM, "Tolerability and blinding of 4x1 High-Definition transcranial direct current stimulation (HD-tDCS) at two and three milliamps", *Brain Stimulation* (2018), doi: 10.1016/j.brs.2018.04.022.
 41. Hu X, Racek A, Nascimento T, Bender M, Hall T, Petty S, O'Malley S, Ellwood R, Kaciroti N, Maslowski E, DaSilva AF. "Feasibility of a Real-Time Clinical Augmented Reality and Artificial Intelligence Framework for Pain Detection and Localization from the Brain". *Med Internet Res*. 2019 Jun 28;21(6):e13594.
 42. Jassar H, Nascimento TD, Kaciroti N, DosSantos MF, Danciu T, Koeppe RA, Smith YR, Bigal ME, Porreca F, Casey KL, Zubieta JK, DaSilva AF. Impact of chronic migraine attacks and their severity on the endogenous μ -opioid neurotransmission in the limbic system. *Neuroimage Clin*. 2019;23:101905
 43. Kaplan CM, Harris RE, Lee U, DaSilva AF, Mashour GA, Harte SE. Targeting network hubs with noninvasive brain stimulation in patients with fibromyalgia. *Pain*. 2019 Oct 3.
 44. Nascimento TD, Yang N, Salman D, Jassar H, Kaciroti N, Bellile E, Danciu T, Koeppe R, Stohler C, Zubieta JK, Ellingrod V, DaSilva AF. μ -Opioid Activity in Chronic TMD Pain Is Associated with COMT Polymorphism. *J Dent Res*. 2019 Sep 6
 45. DaSilva AF, Zubieta JK, DosSantos MF. Positron emission tomography imaging of endogenous μ -opioid mechanisms during pain and migraine. *Pain Rep*. 2019 Aug 7;4(4):e769

Published Articles: Non Peer-Reviewed Journals

1. **DaSilva AF**, Acquadro MA. Orofacial Pain. *Pain Manage Rounds*. 2005;2(1). *Approved by the Harvard Medical School to offer continuing education credit.*
2. **DaSilva AF** and Hadjikhani N. Contributing author – essay: "Human Thalamic Response to Experimental Pain (Neuroimaging)" in the section "Nociceptive Processing in the Thalamus" by Dr. Vania Apkarian. *Encyclopedic Reference of Pain*. Editor Schmidt RF and Willis WD, Springer-Verlag – October 2006.

Articles Submitted for Publication: Peer-Reviewed Journals

Nascimento TD, DDS, MS; Yang N, DDS, MS; Salman D, DDS, MS; Jassar H, PhD; Kaciroti N, PhD; Bellile EL, MS; Danciu TD, DMD, DMedSc; Koeppe RA, PhD; Stohler CS, DMD, DrMedDent; Zubieta JK, MD, PhD; Ellingrod VL, PharmD; DaSilva AF, DDS, DMedSc. COMT Polymorphism Impact on Chronic Pain Sensitivity and Endogenous μ -Opioid Activation in the Human Limbic System. Under Review

Alexandre F. DaSilva, DDS, DMSc
Curriculum Vitae

Impact of Chronic Migraine Attacks and Their Severity on the Endogenous μ -Opioid Neurotransmission in the Limbic System. Jassar H, Ph.D., Nascimento TD, D.D.S., MS., Kaciroti N, Ph.D., DosSantos MF, D.D.S., Ph.D., Danciu T, D.D.S., D.Med.Sc., Koeppe RA, Ph.D., Smith Y, M.D., Bigal ME, M.D. Ph.D., Porreca F, Ph.D., Casey KL, M.D., Zubieta JK, M.D., Ph.D., DaSilva AF, D.D.S., D.Med.Sc. Under Review

Book Chapters and Reports

1. **DaSilva AF** and Acquadro MA. Orofacial Pain. In: Ballantyne J, editor. The Massachusetts General Hospital Handbook of Pain Management (Third Edition). Lippincott Williams & Wilkins; 2005.
2. Borsook D, Moulton E, Scrivani S, **DaSilva AF**, Becerra L. Imaging the Trigeminal System in Health and Disease. In: Mehta N, Maloney G, Bana D, Scrivani SJ, editors. Head, Face and Neck Pain Science, Evaluation, and Management. Hoboken: John Wiley and Sons Ltd; 2009.
3. **DaSilva AF**, Bivins D, Acquadro MA. Neuropathic Facial Pain. In: Mehta N, Maloney G, Bana D, Scrivani SJ, editors. Head, Face and Neck Pain Science, Evaluation, and Management. Hoboken: John Wiley and Sons Ltd; 2009.
4. **DaSilva AF**. The Brain as a Therapeutic Target in TMD and Orofacial Pain: The Next Frontier in Personalized Pain Medicine and Health Technology. In: Poverinin PJ, editor. Personalized Oral Health Care: From Concept Design to Clinical Practice. Springer International Publishing; 2015.
5. **DaSilva AF**. The Brain as Therapeutic Target in Headache and Facial Pain: The Next Frontiers in Pain Medicine and Health Technology. In McNamara J and Kapila S, editors. Moyers Symposium. 2016. (In press)
6. DosSantos M and **DaSilva AF**. Pain Syndromes. In: Brunoni A, Nitsche M, Loo C, editors. Transcranial Direct Current Stimulation in Neuropsychiatric Disorders: Clinical Principles and Management. Springer Publishing; 2016. (In press)
7. **DaSilva AF**. tDCS potential for pain management. In: Knotkova H, Nitsche M, Bikson M, Woods A, editors. Practical Guide to Transcranial Direct Current Stimulation (tDCS). 2016. (In press).
8. **DaSilva AF, DosSantos MF**. Mechanisms of Pain and Headache. In: Springer - Placebos and Nocebos in Headaches (Dimos Mitsikostas; Fabrizio Benedetti co-editors).
9. Invitation to contribute to Surgeon General's Report on Oral Health (2020), National Institute of Dental and Craniofacial Research (NIDCR). *Emerging Technologies and Promising Science to Transform Oral Health*, with a specific focus on Technology for Practice and Implementation Science.

Invited Lectures: University of Michigan

1. 2008 *Translational Research in Chronic Pain*, Anesthesiology Department
2. 2008 *Translational Research in Chronic Trigeminal Pain*, Molecular & Behavioral Neuroscience Institute
3. 2008 *Translational Research in Migraine*, Neurology Department
4. 2008 *Translational Research in Chronic Trigeminal Pain*, Oral & Maxillofacial Surgery Department
5. 2009 *Neuroplasticity and its Clinical Correlations with Chronic Pain*, Molecular & Behavioral Neuroscience Institute
6. 2009 *Clinical and Translational Research in Chronic Orofacial Pain*, Michigan Institute for Oral & Health Research
7. 2009 *Headache and Orofacial Pain – Clinical and Translational Research*, Endodontics Department, School of Dentistry

October 15th, 2019

Alexandre F. DaSilva, DDS, DMSc

Curriculum Vitae

8. 2011 *Translational Research in Chronic Migraine*, Michigan Center for Clinical & Health Research
9. 2011 *Translational Research in Acute and Chronic Trigeminal Pain*, Michigan-Brazilian Research Symposium
10. 2012 *fNIRS & Developmental Neuroscience and Pediatric Multimodal Neuroimaging*, Seminar series, Center for Human Growth and Development
11. 2012 *PainTrek app*, Apple in Health Sciences Session
12. 2012 *Clinical-Translational Research in Migraine*, Neurology Department
13. 2013 *Stimulating Brain Health: Exercise, Electricity, and Other Emerging Interventions*, Seminar, School of Kinesiology
14. 2013 *The Emergent Research Conversation (Innovations in Pain Research)*, Seminar Series, The Library
15. 2013 *Physical Medicine & Rehabilitation*, Advanced Rehabilitation Research Training Program Seminar, University of Michigan
16. 2013 *Tech-innovations in Orofacial Pain Research and Treatment*, CE Course, School of Dentistry
17. 2015 *Tools and Technology*, Seminar Series, Department of Computational Medicine and Bioinformatics
18. 2015 Center for Human Growth and Development (CHGD) Seminar Series
19. 2015 Mette Foundation U-M Medical School and School of Dentistry Scholarship Recipient Dinner
20. 2016 Kresge Hearing Research Institute and Otolaryngology Department Seminar Series: BCS (hearing, balance, and chemical senses) seminars series
21. 2017 Department of Computational: Medicine and Bioinformatics: "Emerging Topics in Quantitative Biology: Medicine in pocket"
22. 2017 The Center for Human Growth and Development (CHGD): "fNIRS Workshop: Shining Light on Child Brain Development" (Co-organizer)
23. 2017 School of Dentistry: Michigan-Brazil Research Symposium
24. 2017 Department of Psychiatry: 28th Annual Albert J. Silverman Research Conference
25. 2017 Center for Human Growth and Development Seminar Series – Fall "Technology, Brain and Development"
26. 2018 University of Michigan School of Dentistry - CE Course: Reducing Opioid Abuse: Mechanisms and Strategies for Safer and More Effective Pain Management
27. 2017 UMSI Board meeting: Ehrlicher Room, University of Michigan
28. 2018 University of Michigan School of Dentistry - CE Course: Reducing Opioid Abuse: Mechanisms and Strategies for Safer and More Effective Pain Management
29. 2018 RGO University of Michigan Fall Retreat
30. 2018 Functional MRI Laboratory's Speaker Series: "How Neurotechnologies are Providing New Insights In Vivo Into the Treatment of Migraine and other Chronic Pain Disorders"

Invited Lectures and Presentations: National

1. 2001 Speaker, TMD & Orofacial Pain Seminar, University of Minnesota, School of Dentistry
 2. 2006 Speaker, 16th Annual Meeting of the Headache Cooperative of New England, Stowe, VT
-

October 15th, 2019

Alexandre F. DaSilva, DDS, DMSc

Curriculum Vitae

3. 2007 Speaker, Forsyth Institute TMJD Workshop, Boston, MA
4. 2007 Poster presenter, NIH Pain Seminar Series, Bethesda, MD
5. 2007 Speaker, Pain Seminar Series, University of Maryland, College Park, MD
6. 2008 Speaker, Headache Cooperative of New England's Board, Boston, MA
7. 2011 Lecturer, CE Course: Clinical, Assessment, and Intervention Updates in Neurorehabilitation, Harvard University, Boston, MA
8. 2012 Poster presenter, 7th Annual National Institute (NIH) Pain Consortium Symposium, Novel Approached and therapy development for Pain Management, NIH, Bethesda, MD.
9. 2012 Poster presenter, American Neurology Association/NIH-NINDS Career Development Symposium, Boston, MA
10. 2012 Speaker, Dana Foundation-Society for Neuroscience Imaging Meeting, New Orleans, LA
11. 2012 Lecturer, CE course: Clinical, Assessment, and Intervention Updates in Neurorehabilitation, Harvard University, Boston, MA
12. 2013 Lecturer, Soterix Medical East Workshop on Conventional and High-definition Transcranial Direct Current Stimulation, Burke Medical Research Institute, Well Cornell Medical College.
13. 2013 Lecturer and Award Recipient, NYC 2013 Neuromodulation Conference, CUNY
14. 2014 Speaker, Webinar Series: Virtual School of Computational Science and Engineering (VSCSE), a National Science Foundation initiative.
15. 2014 Speaker, International Conference of Orofacial Pain/American Academy of Orofacial Pain 38th Scientific Meeting, Las Vegas, NV
16. 2014 Speaker, Oral & Maxillofacial Surgery Grand Rounds, University of California San Francisco, CA
17. 2014 Speaker, Pain Imaging Seminar Series, University of Pittsburgh Center for Pain Research, Pittsburgh, PA
18. 2014 Speaker, Oral Biology Sessions, University of Pittsburgh School of Dentistry, Pittsburgh, PA
19. 2015 Speaker and Session Chair, NYC Neuromodulation 2015 Conference, CUNY, New York, NY
20. 2015 Speaker, Symposium: "Invasive and non-invasive brain stimulation in chronic pain syndromes", Pain Neuromodulation SIGN of the International Association for the Study of Pain, New York, NY
21. 2015 Speaker, 42nd Moyers Symposium and Pre-Symposium, Ann Arbor, MI
22. 2015 Speaker, American Academy of Dental Research Fall Focused Symposium: Advances in the Biology and Management of Orofacial Pain, Washington, D.C.
23. 2016 Speaker, Brain @ Wayne Seminar, Wayne State School of Medicine Translational Neuroscience program
24. 2016 Speaker, NIH Pain Consortium Symposium "New Methods and Models in Pain Research" in the New Technologies Panel. 11th Annual Symposium at the NIH Campus Bethesda highlighting advances in pain research
25. 2016 Speaker, in the session "Can Complementary & Integrative Approaches for Pain Management Engage Brain Circuitry of Endogenous Pain Modulation?" organized by NIH-National Center for Complementary and Integrative Health (NCCIH) at the 35th Annual Scientific Meeting of the American Pain Society, Austin, Texas
26. 2017 Speaker, in the workshop "Brain as a Target for Migraine and Pain Relief - Advances in tDCS Research, Technology, and Application." at the 36th

October 15th, 2019

Alexandre F. DaSilva, DDS, DMSc
Curriculum Vitae

27. 2017 Annual Scientific Meeting of the American Pain Society, Pittsburgh, Philadelphia.
Speaker, 2nd International Conference on Addiction Medicine and Reward Deficiency Syndrome, Baltimore, Maryland.
28. 2017 Speaker, American Headache Society (AHS) 2017 Scottsdale Headache Symposium, Phoenix, AZ
29. 2018 Speaker, Rutgers University School of Dentistry - Orofacial Pain Program
30. 2018 Speaker, American Academy of Orofacial Pain 42nd Scientific Meeting, Chicago, IL
31. 2018 Speaker, Michigan Oral Health Coalition event, Kellogg Hotel and Conference Center in East Lansing
32. 2018 Speaker, NYC Neuromodulation and NANS Summer Series, Sheraton Times Square, NY
33. 2019 Speaker (Scientific Session), 2019 North American Neuromodulation Society (NANS), Caesars Palace in Las Vegas, Nevada
34. 2019 Speaker, 61st Annual Scientific Meeting of the American Headache Society, Philadelphia, PA
35. 2019 Speaker, National Academies Sciences, Engineering and Medicine TMD Workshop 2019- Committee on Temporomandibular Disorders (TMD): From Research Discoveries to Clinical Treatment, Washington, D.C.
36. 2019 Speaker, Stony Brook University School of Dentistry, N.Y.
37. 2019 Program Committee Member, Chair and Speaker for the Headache / Non-Invasive Stimulation section, NTS/NYC Neuromodulation conference, Napa Valley, CA
38. 2019 Speaker, CE in Opioid. University of Pennsylvania School of Dental Medicine, Philadelphia, PA
39. 2020 Selected Workshop by the University of Michigan for the Florida Seminars: Innovation in Migraine and Pain Research. Naples, Florida
40. 2020 47th Moyers Symposium, Ann Arbor, MI
41. 2020 Selected Workshop: "Using Mobile Technology for Person-centered Pain Management, Research and Education". 2020 ADEA Annual Session & Exhibition. National Harbor, MD
42. 2020 Speaker, American Academy of Orofacial Pain 44th Scientific Meeting, Orlando, FL

Invited Lectures and Presentations: International

1. 2006 Speaker, 1st International Symposium of Temporomandibular Disorders and Orofacial Pain, Rio de Janeiro, Brazil
2. 2007 Speaker, 2nd International Symposium of TMJD and Orofacial Pain, Rio de Janeiro, Brazil
3. 2008 Speaker, 3rd International Symposium of Temporomandibular Disorders and Orofacial Pain, Rio de Janeiro, Brazil
4. 2010 Invited faculty, Orofacial Pain, Hospital das Clinicas, Universidade de São Paulo, Brazil
5. 2011 Invited faculty, Orofacial Pain, Sao Paulo, Brazil (video conference). Hospital das Clinicas, Universidade de São Paulo, São Paulo, Brazil
6. 2011 Speaker, Congresso Interdisciplinar de Dor (CINDOR), Universidade de São Paulo, São Paulo, Brazil
7. 2012 Lecturer, Orofacial Pain Course (video conference), Hospital das Clinicas, Universidade de São Paulo, São Paulo, Brazil.

October 15th, 2019

Alexandre F. DaSilva, DDS, DMSc
Curriculum Vitae

8. 2012 Speaker, XXVI Annual Congress of the Brazilian Headache Society, Rio de Janeiro, Brazil
9. 2012 Speaker, VII Orofacial Pain Congress Committee, Rio de Janeiro, Brazil
10. 2014 Speaker, XI Congresso de Dolor - Spanish Pain Society Congress, Toledo, Spain
11. 2014 Speaker, Symposium on Neuromodulation, Satellite event of the 15th World Congress on Pain, International Association for the Study of Pain, Buenos Aires, Argentina
12. 2014 Speaker, Topical Workshop: Placebo Analgesia, 15th World Congress on Pain, International Association for the Study of Pain, Buenos Aires, Argentina
13. 2015 Speaker, VII SIMPAR (Study in Multidisciplinary Pain Research) meeting, Rome, Italy
14. 2016 Speaker, VIII SIMPAR (Study in Multidisciplinary Pain Research) meeting: Rome, Italy
15. 2016 Visitor Lecturer, Post-Graduation Program in Medical Science of School of Medicine, Universidade Federal do Rio Grande do Sul, Brazil
16. 2017 Speaker, IX SIMPAR (Study in Multidisciplinary Pain Research) meeting, Florence, Italy
17. 2017 Speaker, Session: New insights in vivo into the treatment of migraine and other chronic pain disorders using non-invasive neuromodulation, 2nd International Brain Stimulation Conference, Barcelona, Spain
18. 2017 Speaker, Session: Home-based neuromodulatory technologies for migraine and orofacial pain disorders, 2nd International Brain Stimulation Conference, Barcelona, Spain
19. 2017 Speaker, 18th Congress of the International Headache Society, Vancouver, Canada
20. 2018 Speaker, IV Frontiers in Neuroscience Symposium, Buzios, Rio de Janeiro, Brazil
21. 2018 Speaker, Joint congress of the Neuromodulation Society of UK & Ireland and Special Interest Group in Neuromodulation of IASP, Oxford University, United Kingdom
22. 2018 Speaker, 8th Scientific Meeting of The Special Interest Group On Neuromodulation of the Spanish Pain Society, Madrid, Spain
23. 2019 Speaker, XXXIII Annual Congress of the Brazilian Headache Society, São Paulo, Brazil

Research Presentations at Professional Meetings

1. 2007 Invited, Poster/Travel Award NIH Pain Consortium Symposium: Advances in Pain Research, Bethesda, MD.
2. 2012 Invited, Poster/Travel Award - 7th Annual National Institute (NIH-NINDS) Pain Consortium Symposium, Novel Approaches and Therapy Development for Pain Management, NIH, Bethesda, MD.

Published Abstracts (selected)

1. **DaSilva AF**, Becerra L, Makris N, Strassman A, Gonzalez, RG, Geatrakis N, Borsook D. *fMRI Activation in the Trigeminal Nucleus, Ventroposteromedial Thalamus and SI Regions Following Noxious Thermal Stimulation of the Trigeminal Nerve (V1, V2, V3)*. 19th Annual Meeting of the American Pain Society, Atlanta, 2000.

Alexandre F. DaSilva, DDS, DMSc
Curriculum Vitae

2. **DaSilva AF**, Becerra L, Makris N, Strassman A, Gonzalez, RG, Geatrakis N, Borsook D. “*Activation in the Spinal Trigeminal Nucleus (spV) in Humans Following Noxious Heat Applied to the Skin of V1, V2, and V3.*” 29th Annual Scientific Meeting of the American Academy of Orofacial Pain. Washington, DC, 2001.
3. **DaSilva AF**, Becerra L, Makris N, Strassman A, Gonzalez, RG, Geatrakis N, Borsook D. “*fMRI Activation in the Trigeminal Pain Pathway (SPV, Thalamus, SI) following Noxious Heat.*” 31st Neuroscience Meeting, San Diego, CA 2001. **DaSilva AF** Becerra L, Makris N, Strassman A, Gonzalez, RG, Geatrakis N, and Borsook D fMRI Activation in the Trigeminal Pain Pathway following Noxious Heat. 31st Neuroscience Meeting, San Diego, CA, 2001, and Brainstorm Meeting: The Future of Neuroimaging, Greece, Athens, 2002.
4. N. Makris, S.M. Hodge, H.C. Breiter, S.C. McInerney, C. Haselgrove, D.N. Kennedy, A. Dale, B. Fischl; A.L. Sonricker, J.E. Schlerf, M.E. Dieterich, D.L. Boriel, K.K.S. Hui, **AF DaSilva**, D. Borsook, L. Becerra, V.S. Caviness, J.D. Schmahmann. MRI. Based Topographic Parcellation of Human Brainstem with Systematics of Corticopontine Connectivity. Human Brain Mapping Conference, New York, 2003.
5. **DaSilva AF**, Loder E, Sorensen AG, Hadjikhani N. “*Development of a Craniofacial Pain Map for use in Neuroimaging Studies*”. 11th International Headache Society Congress, Rome, Italy, 2003
6. **DaSilva AF**, Snyder J, Tuch DS, Hadjikhani N. “*Diffusion Tensor Imaging (DTI) of Migraine Patients*”. 34th Neuroscience Meeting, San Diego, CA, 2004. Slide presentation – selected by the Public Information Committee for inclusion in the Annual Meeting Press Book to be distributed to the national and international media before the meeting.
7. **DaSilva AFM**, Granziera C, Snyder J, Tuch DS, Hadjikhani N. “*Microstructural Changes in White Matter Tracts of Migraine Patients.*” 8th International Conference on the Mechanism and Treatment of Neuropathic Pain, San Francisco, California USA November 3 -5, 2005.
8. **DaSilva AF**, Snyder J, Tuch DS, Hadjikhani N. “*DTI of White Matter Microstructural differences in Migraine with Aura.*” 13th Scientific Meeting of the International Society for Magnetic Resonance in Medicine, Miami, FL, 2005. Slide presentation – selected for the Clinical Science Focus Session: Insights into Diseases by Diffusion MR.
9. **DaSilva AF**, Granziera C, Snyder J, Tuch DS, Hadjikhani. “*Microstructural Changes in the Somatosensory Pathway of Migraine Patients*”. N ADEA/AADR/CADR Meeting & Exhibition, Orlando, FL, March, 2006. Slide presentation – selected for the Oral Session Title: Orofacial Pain: Pathophysiology and Epidemiology.
10. **DaSilva AF**. “*The Brain as a Research and Therapeutic Target for Chronic Trigeminal Pain.*” NIH Pain Consortium Symposium: Advances in Pain Research, Bethesda, MD, May 1st, 2007. Invited poster presenter.
11. **DaSilva AF**, Becerra L, Borsook D. “*Co-localized functional and structural changes in the brains of patients with unilateral trigeminal neuropathic pain.*” Neuroscience Meeting, San Diego, 2007.
12. **DaSilva AF**, Snyder J, Tuch D, Hadjikhani N. “*Peripheral Changes in the Trigeminal Sensory System of Migraine Patients.*” IADR General Session. Toronto, 2008. *Oral Session Title: Keynote Address and Thirty Years of Orofacial Pain Research - Selected as an Oral Session Chair.*

Alexandre F. DaSilva, DDS, DMSc
Curriculum Vitae

13. **DaSilva AF**; Anderson J; Becerra L; Borsook D. "*Neuroplastic Changes in the cortex of chronic TMD Patients.*" IADR General Session. Miami, FL 2009. Oral Session Title: Pathobiology of Orofacial Pain and Disorders - Selected as an Oral Session Chair.
14. **DaSilva AF**, Love T, DosSantos MH, Martella A, Enoch MA, Hodgkinson C, Goldman D, Stohler C, and Zubieta JK. "*BDNF Val66Met Affects Dopaminergic Pathways Associated with Human Trigeminal Pain Experience.*" IADR General Session. Barcelona, Spain, 2010. Oral Session Title: Orofacial Pain Mechanism: Human and Animal Studies - Selected as an Oral Session Chair.
15. **DaSilva AF**, Love T, DosSantos MH, Martella A, Enoch MA, Hodgkinson C, Goldman D, Stohler C, and Zubieta JK. "*BDNF Val66Met Affects Dopaminergic Pathways Associated with Human Trigeminal Pain Experience.*" 52th American Headache Society Meeting. Los Angeles, CA, 2010.
16. **DaSilva AF**, Mendonça ME, Zaghi S, Lopes MZ, Spiering S, Bajwa Z, Fregni F. Delayed "*Analgesic Effects of Non-Invasive Brain Stimulation in Chronic Migraine*", IADR General Session. San Diego, CA, 2011. Session Title: Keynote Address and Temporomandibular Disorders and Orofacial Pain Treatment - Selected as the Oral Session Chair.
17. **DaSilva AF**, Mendonça ME, Abhishek Datta, Zaghi S, Lopes MZ, DosSantos M, Spiering S, Bajwa Z, Fregni F. "*Chronic Migraine Alleviation by tDCS Is Predicted To Be Associated with Current Flow through Pain-Related (Sub)Cortical Regions*". 53th American Headache Society Meeting. Washington, DC, 2011.
18. Nascimento TD, Speciali JG, **DaSilva AF**, Bigal ME, Simoes AL. "*High Prevalence of Medication-Overuse Headache in Indigenous Communities*". 53th American Headache Society Meeting. Washington, DC, 2011.
19. **DaSilva AF**, Nascimento TD, Love T, DosSantos MF, Martikainen IK, DeBoer M, Cummiford CH, Fregni F, Smith YR., Maslowski E, Zubieta JK, "*Endogenous [mu]-Opioid System as a Research and Therapeutic Target in Migraine*" American Neurology Association /NIH-NINDS Career Development Symposium, Boston, MA 2012
20. DosSantos MF, Martikainen IK, Nascimento TD, Love TM, DeBoer MD, Khatib LN, Zubieta JK, **DaSilva AF**. "*Reduced μ -Opioid Receptor Availability in Nucleus Accumbens in Trigeminal Neuropathic Pain. International Association for the Study of Pain (IASP), 14th World Congress of Pain.*" Milan, Italy, 2012.
21. Nascimento TD, DosSantos MF, Martikainen IK, Love TM, PhD, Cummiford CM, DeBoer MD, Khatib LN, Smith YR, Zubieta JK, **DaSilva AF**. "*Molecular Profile of a Migraine Attack: Impact in The Endogenous Opioidergic System.*" International Association for the Study of Pain (IASP), 14th World Congress of Pain. Milan, Italy, 2012. Research Fellow Poster/Travel Award.
22. Nascimento TD, Love T, DosSantos MF, Martikainen IK, Cummiford CH, DeBoer M, Koeppe RA., Hall TA, Petty S, Maslowski E, Smith YR., Zubieta JK, **DaSilva AF** "*Impact of a Spontaneous Migraine Attack in the Endogenous μ -Opioid System in Vivo*". International Headache Congress, Boston, MA, 2013.
23. Van Holsbeeck H, S. Lucas, DeBoer M, Aiello C, Nascimento TD, DosSantos MF, UMSoD Class of 2014, **A.F. DaSilva**. "*Real-Time Epidemiology of Migraine Attacks on Social Media.*". International Headache Congress, Boston, MA, 2013.
24. DosSantos MF, Martikainen IK, Nascimento TD, Love T, DeBoer M, Zubieta JK, **DaSilva AF**. "*Placebo tDCS induces acute changes in the endogenous mu-opioid system.*". International Headache Congress, Boston, MA, 2013.

October 15th, 2019

Alexandre F. DaSilva, DDS, DMSc
Curriculum Vitae

25. Nascimento TD, DosSantos Mf, Lucas S, DeboerM, Van HolsbeeckH, Maslowski E, Love T, MartikainenI, KoeppeR, Smith Yr, ZubietaJk, Danciu TE, **DaSilva AF**. “*Activation of μ -Opioid System During Spontaneous Migraine Headache and Allodynia*” AADR Annual Meeting & Exhibition, Charlotte, NC, USA, 2014.
26. DosSantos MF, MartikainenIK, Nascimento TD, LoveT, DeboerMD, ZubietaJK, **DaSilva AF**. “*Human μ -Opioid Mechanisms in Placebo and Active tDCS Analgesia*” AADR Annual Meeting & Exhibition, Charlotte, NC, USA, 2014.
27. Nascimento TD, DosSantos MF, Lucas S, Van Holsbeeck H, DeBoer M, Maslowski E, Love T, Martikainen IK, Koeppe IK, Smith YR, Zubieta J, **DaSilva AF**. “*High Endogenous M-Opioid Activation In The Prefrontal Cortex And Midbrain During Spontaneous Migraine And Allodynia*” International Association for the Study of Pain (IASP), 15th World Congress of Pain. Buenos Aires, Argentina, 2014.
28. DosSantos MF, Martikainen IK, Nascimento TD, Love TM, DeBoer MD, Schambra HM, Bikson M, Zubieta JK, **DaSilva AF**. “*Placebo And Active tDCS Analgesia: Shared And Dissimilar Endogenous Opioid Mechanisms*” International Association for the Study of Pain (IASP), 15th World Congress of Pain. Buenos Aires, Argentina, 2014.
29. Cumminford CM, Foerster BR, Nascimento T, Clauw DJ, Zubieta JK, **DaSilva AF**, Harris RE. “*Decreased Glutamate And Nociceptive Connectivity After Noninvasive Brain Stimulation In Fibromyalgia*” International Association for the Study of Pain (IASP), 15th World Congress of Pain. Buenos Aires, Argentina, 2014.
30. Donnell A, Nascimento T, Lawrence M, Gupta V, Zieba T, Truong DQ, Bikson M, Datta A, Bellile, **DaSilva AF**. “*High-Definition Non-Invasive Brain Modulation of Sensorimotor Dysfunction in Chronic TMD.*” IADR/AADR/CADR General Session. Boston, MA, 2015.
31. DosSantos MF, Truong DQ, Datta A, Bikson M, **DaSilva AF**. “*State-of-art for (HD)-tDCS Migraine/Pain Control and Model Based Target Analysis.*” IADR/AADR/CADR General Session. Boston, MA, 2015.
32. Racek AJ, Hu XS; Nascimento T; Bender MC, **DaSilva AF**. “*Real-time assessment of brain activity during dental pain and percussion in a clinical setting.*” IADR/AADR/CADR General Session. Boston, MA, 2015.
33. **DaSilva AF**, Nascimento TD, Heffernan J, Lucas S, van Holsbeeck H, DosSantos MF, Bellile EL, Koeppe RA, Smith YR, Zubieta JK. “*Thalamic μ -Opioid Dysfunction in Chronic Migraine and Allodynia in Vivo.*” Research Day U-M School of Dentistry, 2016.
34. Salman D, Nascrimneto TD, Toback R, Khatib L, Bellile E, **DaSilva AF**. “*Mu-Opioid Changes in The Brains of Chronic TMD Patients During Clinical and Experimental Pain.*” Research Day U-M School of Dentistry, 2016.
35. Hu XS, Racek AJ, Nascimento T, Bender MC, Toback RL, Khatib L, Ellwood RP, **DaSilva AF**. “*Immediate change of functional brain connectivity after dental pain in a clinical setting.*” Research Day U-M School of Dentistry, 2016.
36. Yang N, Nascimento TD, Toback R, Khatib L, Bellile E, Ringold VE, **DaSilva AF**. “*Impact of COMT haplotypes on u-opioid system binding in TMD patients.*” Research Day U-M School of Dentistry, 2016.
37. Schwitzer D, Wigington N, Toback R, Danciu T, Nascimento T, Maslowski E, Petty S, Hu XS, Faezipour M, Abushakra A, Ashman L, Feinberg S, Bellile E, **DaSilva AF**. “*Visual and Auditory Interoceptive Modulation of Pain Perception and Anxiety Using Real-Time 3D Virtual Reality Breathing with Oculus Rift.*” Research Day U-M School of Dentistry, 2016.

Alexandre F. DaSilva, DDS, DMSc
Curriculum Vitae

38. Cummifor CM, Nascimento TD, Foerster BR, Clauw DJ, Zubieta JK, Harris RE, **DaSilva AF**. “Changes in Resting State Functional Connectivity after Repetitive Transcranial Direct Current Stimulation Applied to Motor Cortex in Fibromyalgia Patients.” Research Day 2016 U-M School of Dentistry. First Poster Awards for Phd, Post Doc, Staff in Clinical Research and Public Health.
39. Bellile E, Donnell A, Nascimento TD, Maslowski E, **DaSilva AF**. “Validation and Reliability of a Novel Mobile Application to Objectively Track Pain in Clinical Trials.” Second Poster Awards for Phd, Post Doc, Staff in Clinical Research and Public Health.
40. Nascimento TD, Heffernan J, Toback RL, Lucas S, DosSantos MF, Bellile EL, Casey KL, Koeppe RA, Smith YR, Zubieta JK, **DaSilva AF**. “Dopamine D2/D3 Imbalance During Migraine Attack and Allodynia In Vivo.” Third Poster Awards for Phd, Post Doc, Staff in Clinical Research and Public Health.
41. **Nascimento T***, Salman D, Yang N, Jassar H, Bellile E, Toback R, Khatib L, Burnett D, Koeppe RA, Stohler C, Zubieta JK, Ringold V, DaSilva AF. Dysfunctional μ -opioid System in TMD is Modulated by COMT Genotype. IADR/AADR/CADR General Session. San Francisco, CA, 2017 (***Chair of the oral session**)
42. **Jassar H***, Nascimento T, Toback R, Lucas S, DosSantos MF, Bellile E, Casey KL, Koeppe RA, Smith YR, Zubieta JK, DaSilva. Dopamine D2/D3 Imbalance During Migraine Attack and Allodynia in Vivo. IADR/AADR/CADR General Session. San Francisco, CA, 2017 (***Co-Chair of the oral session**)
43. **Hu X***, Bellile E, Nascimento T, Bender M, Toback R, Khatib L, Ellwood R, DaSilva AF. Immediate Impact of Clinical Dental Pain Expectation/Suffering on the Brain. IADR/AADR/CADR General Session. San Francisco, CA, 2017 (***Co-Chair of the oral session**)
44. Pantzlaff E, Wigington N, Schwitzer D, Burnett D, Danciu T, Nascimento T, Petty S, Maslowski E, Hu X, Ashman L, Feinberg S, DaSilva AF. Interceptive Neuromodulation of Pain Perception with Virtual Reality Breathing. IADR/AADR/CADR General Session. San Francisco, CA, 2017
45. Hu X, Racek D, Bellile E, Nascimento T, Bender M, Toback R, Burnett D, Khatib D, McMahan R, Ellwood RP, Kovelman I, DaSilva AF. Clinical pain is predicted by baseline brain functional connectivity and hemodynamic responses – from expectation to dental suffering. U-M School of Dentistry, 2017.
46. Yang N, Nascimento TD, Salman D, Jassar H, Bellile EL, Toback RL, Khatib L, Burnett DK, Koeppe RA, Stohler CS, Zubieta JK, Ellingrod VL, DaSilva AF. Impact of COMT genotypes on μ -opioid system binding in healthy subjects and chronic TMD patients. U-M School of Dentistry, 2017.
47. Nascimento TD, Heffernan J, Toback RL, Lucas S, DosSantos MF, Bellile EL, Casey KL, Koeppe RA, Smith YR, Zubieta JK, DaSilva AF. Dopamine D2/D3 Imbalance During Migraine Attack and Allodynia In Vivo. Research Day U-M School of Dentistry, 2017.
48. Hall T, Maslowski E, Petty S, O’Malley S, Nascimento T, Hu X, Jassar H, Burnett D, Pantzlaff E, Wigington N, Schwitzer D, Khatib L, McMahan R, Ashman L, Feinberg S, Danciu T, DaSilva AF. Michigan Clinical Augmented Reality Pain (MCARP) Unit at the Headache and Orofacial Pain Effort (H.O.P.E.) Laboratory, University of Michigan School of Dentistry. Research Day U-M School of Dentistry, 2017.
49. Hu X, Racek AJ, Bellile E, Nascimento TD, Bender MC, Toback R, Burnett D, Khatib L, McMahan R, Ellwood RP, Kovelman I, DaSilva AF. Resting State Functional Connectivity and Dental Pain: Neuroimaging and Disease State

Alexandre F. DaSilva, DDS, DMSc
Curriculum Vitae

- Prediction. Annual Session of the American Association of Endodontists Annual Meeting New Orleans, LA. **Second Place Award as the best research presentation at the Annual Meeting of the American Association of Endodontists 2017**
50. A Pain Detector based on Neuroimaging Clinical Augmented Reality and Artificial Intelligence (CLARAI), 17th World Congress on Pain, International Association for the Study of Pain (IASP), Boston, USA, 2018.
 51. Validity and Reliability of a Novel Mobile Application for Migraine and Chronic Pain Neuroimaging and Neuromodulation trials, 17th World Congress on Pain, International Association for the Study of Pain (IASP), Boston, USA, 2018.
 52. COMT Genotype Modulates Endogenous μ -opioid System and Pain Sensitivity in TMD, 17th World Congress on Pain, International Association for the Study of Pain (IASP), Boston, USA, 2018.
 53. Chronic Migraine Attack Severity and Allodynia Highly Impact Human Endogenous μ -Opioid Activation in the Limbic System, 17th World Congress on Pain, International Association for the Study of Pain (IASP), Boston, USA, 2018.
 54. Differential patterns of electric current flow produced by conventional and high definition tDCS montages in the midbrain and in the trigeminal sensory nuclear complex, 17th World Congress on Pain, International Association for the Study of Pain (IASP), Boston, USA, 2018.

Patents and Inventions

1. **Non-invasive functional imaging of Peripheral Nervous System Activation in Humans and Animals.** Massachusetts General Hospital, Corporate Sponsored Research & Licensing (submitted).
Creators: David Borsook, Lino Becerra, and Alexandre F DaSilva.
2. ***PainTrek (Provisional Patent Application Filed).*** *PainTrek* is a free mobile app that provides the user with an intuitive way to track their pain and is particularly useful for those with Headache or facial pain. The app is available for the iPod , iPad, and iPhone platforms. (<http://youtu.be/HIBFrT3vlQY>)
Creators: Alexandre F. DaSilva, Eric Maslowski, Sean Petty, Sean Sheehan, Stephanie O'Malley
3. **Invention Report - Clinical Augmented Reality Evaluation of Patient's Brain Activation in Real-Time:** The invention is primarily comprised of unique matching of existing technologies with novel software to help connect the pieces. First, there is the scanning hardware and software which allows for a real-time scan of brain activation. The second aspect of the technology relates to interpreting the data stream in real-time so that it can be displayed on a variety of display devices. The resulting visual outputs then distorted to work with a variety of display systems including oculus rift and emerging augmented reality technologies.
4. ***MoxyTech LLC (University of Michigan Start-up):*** Co-founder of *MoxyTech*, which was built on a long term collaboration and experience in clinical pain trials and mobile/visualization applications, with product adoption by several patients across the globe. We provide interactive and intuitive 3D mobile platform specific to pain and associated symptoms for real-time database tracking and analysis, with customized interfacing with existing healthcare IT systems.

Invited Guests to M-CARP Unit (H.O.P.E. Lab) by University of Michigan

1. 2017 Peter Lee, Microsoft Corporate Vice-President, Artificial Intelligence and Research

October 15th, 2019

Alexandre F. DaSilva, DDS, DMSc
Curriculum Vitae

2. 2017 Dan Ayoub, Microsoft General Manager of Education
3. 2017 University Research Corridor organized the three-day tour of its three member universities – the University of Michigan, Michigan State and Wayne State – to provide a sampling of some of the latest cutting-edge research in the state. Participants included legislative assistants and other staff members of U.S. Senators Debbie Stabenow and Gary Peters and Representatives Mike Bishop, Debbie Dingell, Sander Levin, John Moolenaar, Fred Upton and Tim Walberg.
4. 2018 Jamie Voris, Chief Technical Officer, The Walt Disney Company
Bruce Bleasdale, VP Technology, The Walt Disney Studios
5. 2018 Marcelo Bigal, Chief Medical Officer, Purdue Pharma and its medical research team
6. 2019 Tim Petersen, Managing Partner, Arboretum Ventures
7. 2019 Jeremy Nelson, Director, XR Initiative, Center for Academic Innovation, University of Michigan

M-CARP Unit (H.O.P.E. Lab) Workshops Across Campus

1. 2017 University of Michigan Bicentennial Third Century Expo Fall Festival.
2. 2018 Research Day, University of Michigan School of Dentistry

Public Media and Editorials

1. **University of Michigan Health System \$1 Billion Fundraising Campaign**
Video footage and photographs of my research work were acquired by the University of Michigan Health System (UMHS) Development Office for their new \$1 billion fundraising campaign. This will be used for our campaign communications, as well as for the new UMHS television ads and other materials.
UMHS campaign video: <http://umhealth.me/victorsvideo>
2. **University of Michigan Health – BIG TEN Network**
Big Ten Network, a major television channel operated by Fox, has contacted the UMich News Service to create a story related to the 3DLab and H.O.P.E. lab. They pitched our research to represent innovation at the University of Michigan. As a result, BTN produced a brief story and posted it on TV and other media venues (e.g. during football games) through the 2014 season.
3. **University of Michigan News Service Coverage: Pain Neuroimaging/Neuronavigation**
<http://www.ns.umich.edu/new/multimedia/videos/21402-hologram-like-3d-brain-helps-researchers-decode-migraine-pain>
4. **Pain Neuromodulation**
<http://www.ns.umich.edu/new/multimedia/videos/20347-migraine-patients-find-pain-relief-in-electrical-brain-stimulation>
5. **Pain Mobile Technology**
<http://www.ns.umich.edu/new/multimedia/videos/20960-new-mobile-app-helps-migraine-sufferers-track-and-analyze-pain>
6. **Pain (Migraine) Infodemiology**
<http://ns.umich.edu/new/releases/22081-new-tweetment-twitter-users-describe-real-time-migraine-agony>
7. **3d-Anatomy Dissection**
<http://ns.umich.edu/new/releases/22078-students-virtually-dissect-hologram-like-3-d-cadaver>
8. **High-Definition Pain Neuromodulation (Portuguese)**

October 15th, 2019

Alexandre F. DaSilva, DDS, DMSc
Curriculum Vitae

- <http://ns.umich.edu/new/noticias-em-portugues/23061-direto-ao-ponto-ou-melhor-ao-cerebro-no-combate-a-dor>
9. **Migraine Brain Mechanisms – Dopamine: University of Michigan News – First Page** <http://ns.umich.edu/new/multimedia/videos/24711-brain-scans-show-dopamine-levels-fall-during-migraine-attacks>
 10. **U-M startup launches GeoPain, a 3D app that puts pain on the map: University of Michigan News** <https://news.umich.edu/u-m-startup-launches-geopain-a-3d-app-that-puts-pain-on-the-map/>
 11. **Technology allows researchers to see patients’ real-time pain while in the clinic. University of Michigan News** <https://news.umich.edu/technology-allows-researchers-to-see-patients-real-time-pain-while-in-the-clinic/>

Selected Interviews

1. 2010 Science News Magazine: “Why It’s So Hard to Tell Which Tooth Has the Ache” by Sarah Sanders. <http://www.wired.com/2010/04/toothache/>
2. 2012 Science Daily: “Technology eases migraine pain in the deep brain” <http://www.sciencedaily.com/releases/2012/04/120430192625.htm>
3. 2014 Los Angeles Times: “Tweeting a Killer Migraine in Real Time” by Mary MacVean www.latimes.com/science/sciencenow/la-sci-sn-twitter-migraine-20140403-story.html
4. 2014 USA Today: “Worst: Migraine sufferers share pain on Twitter” by Kim Painter www.usatoday.com/story/news/nation/2014/04/04/migraine-twitter-study/7304291/
5. 2014 San Francisco Chronicle: “Migraine pain isn't enough to keep sufferers from Twitter” by Kathryn Roethel www.sfgate.com/health/article/Migraine-pain-isn-t-enough-to-keep-sufferers-from-5405291.php
6. 2014 Scientific American Mind (10th anniversary special issue): “Your Electric Pharmacy: Next Generation Treatments” by Marom Bikson and Peter Toshev. www.scientificamerican.com/article/zap-your-brain-to-health-with-an-electrode-cap/
7. 2014 WDIV, NBC TV Channel affiliate: “Live in the D: Inside U of M's 3D lab” by Frank McGeorge www.clickondetroit.com/news/live-in-the-d/live-in-the-d-inside-u-of-ms-3d-lab/29029928
8. 2014 Medical News Today: “Migraines: unique data collected from sufferers sharing pain on Twitter” by Mary Ellis. <http://www.medicalnewstoday.com/articles/275041.php>
9. 2014 Popular Mechanics: “Virtual Surgery: Training Med Students on a 3D Cadaver” by Charles Q. Choi www.popularmechanics.com/science/health/med-tech/virtual-surgery-training-med-students-on-a-3d-cadaver-16659823
10. 2014 Al Jazeera America News: “Cutting Edge Virtual Cadavers Help Medical Students Train” by Tonya Mosley. <https://ajam.app.boxcn.net/s/0fg7b421li2ntswlhgup>
11. 2014 Science Update Podcast: “A 3-D hologram of a human cadaver brings med-school dissection to the 21st century.” By Bob Hirshon www.scienceupdate.com/2014/04/body-2/
12. 2014 WWJ Newsradio CBS radio affiliated: “Migraine twitter” by Sean Lee
13. 2014 The Michigan Daily: “Virtual reality device allows students inside look at

Alexandre F. DaSilva, DDS, DMSc
Curriculum Vitae

14. 2015 anatomy” by Kaitlin Zurdosky www.michigandaily.com/news/virtual-reality-device-allows-students-inside-look-medical-anatomy
15. 2015 DBusiness Magazine: "3-D Brain Studies"
16. 2016 Discovery Channel Canada – Daily Planet Filming
17. 2016 Inside Michigan Football TV Promo - Leaders and Best: Jim Brandstatter
17. 2017 Hour Magazine Special Health Issue (Cover)
[http://www.mydigitalpublication.com/publication/?i=400610#{"issue_id":400610,"page":0}](http://www.mydigitalpublication.com/publication/?i=400610#{)
18. 2018 Michigan Daily - University researchers release app to pinpoint patient pain

International Interviews

1. 2001 Globo Reporter (Brazil): “The Brain with Pain.”
2. 2013 Veja.com (Brazil): “Brazilian Doctor Creates a 3D Imaging of a Brain” by Vivian Elias veja.abril.com.br/noticia/saude/cientistas-estudam-enxaqueca-com-imagem-3d-de-cerebro
3. 2014 Folha de São Paulo (Brazil): “American University Develop Virtual Autopsy in 3D Guided by Joystick” by Claudia Collucci
www1.folha.uol.com.br/equilibrioesaude/2014/07/1489865-faculdade-nos-eua-desenvolve-autopsia-em-3d-ajuda-futuros-medicos.html
4. 2015 Journal da Band (Brazil): “3D Autopsy Helps Future Doctors”
5. <http://noticias.band.uol.com.br/jornaldaband/videos/2014/08/09/15155202-autopsia-em-3d-ajuda-futuros-medicos.html>
6. 2017 Estadão de São Paulo, Brazil - Migraine Dopaminergic Brain Mechanisms
<http://saude.estadao.com.br/noticias/geral,nos-eua-brasileiro-usa-realidade-virtual-para-estudar-enxaqueca,70001736919>
7. 2019 Veja Magazine, Brazil. Technology helps physicians to 'see' local and pain intensity of patients <https://veja.abril.com.br/ciencia/tecnologia-ajuda-medicos-a-ver-local-e-intensidade-da-dor-de-pacientes/>

Selected Media Coverage of Our Work

Metro, Slate, Financial Express, NPR, NBC, CBS, BBC, Scientific American Mind Magazine, Reuters, Forbes, Washington Post, The Guardian, The Telegraph, CBC, Medical News Today, Delhi Daily News, Free Press Journal, The News International, RedOrbit, Detroit Free Press, UPI, and others.