

# **THOMAS MAXIMILIAN HEMMERLING**

## **CURRICULUM VITAE**

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## CURRICULUM VITAE

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Name	<b>HEMMERLING, Thomas Maximilian</b>
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Tel	514.887.0474
E-Mail	thomas.hemmerling@mcgill.ca
Citizenship	Canadian, German
Languages	English, French, German, Italian

### *Current status*



#### *Professor*

- *Department of Anesthesiology, McGill University*



#### *Society of Technology in Anesthesia (STA)*

- *Chair, Research Committee*
- *Director, ITAG (intelligent technologies in anesthesia group) lab, McGill*

**POSITIONS/EXPERIENCE/SKILLS POSSIBLY RELEVANT FOR CURRENT APPLICATION**  
**(chronological order, most recent first)**

**Member of Expert steering committee AI FMSQ (Federation of Medical Specialists of Quebec) – since 2023**

The committee aims to develop guidelines for use of AI, especially large language models, in the Quebec healthcare system

**Founder SteigerKi Award (KI = German for AI)**

This award, founded in 2023, aims to teach high school students in Germany artificial intelligence; in a German pilot school, the Award is designed for 1 year, during which the students have to realize a project around 3 themes – AI for traffic solutions, AI for environmental causes, AI to help solve social problems – under the guidance of my team and myself. The best projects are then selected by a jury.

[www.steigerki.com](http://www.steigerki.com)

(TV program on the Award: <https://www.sr-mediathek.de/index.php?seite=8&sen=MA-WIMS>)

**AI expert for Anesthesia & Analgesia (since 2023)**

I have been designated as the expert on all issues of AI – from robotics, to machine learning to large language models – for the international journal Anesthesia & Analgesia. I also serve as one of the Executive Editors for that journal.

**Section Editor Anesthesia & Analgesia for the Section Technology, Computing and Simulation (since 2020)**

I handle all papers dealing with technology, computing or simulation, with the main focus on papers around AI in critical care medicine, and anesthesia.

**Chair Research committee – Society of Technology in Anesthesia (STA)**

Since 2012, Chair of the research committee of STA; in this capacity, I deal with projects, funding and other related topics in technology in anesthesia, recently mostly with topics of AI. The main focus is to foster junior researchers. The STA is the leading, US-based society focusing on technologies in anesthesia, including advisory function for the government.

**World Premier #2 (2011)**

Inventor of Kepler Intubation System – the World's first intubation robot

<https://www.mcgill.ca/newsroom/channels/news/introducing-world%E2%80%99s-first-intubation-robot-173966>

**World Premier #1 (2008)**

Inventor of McSleepy, the World's first anesthesia robot

<https://www.mcgill.ca/newsroom/channels/news/world-first-researchers-develop-completely-automated-anesthesia-system-100263>

## EDUCATION

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### Postdoctoral Formation

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2000 – 2001	<i>Fellowship Research, Université de Montréal, Prof. Donati</i>
1998 – 1999	<i>Fellowship Cardiac Anesthesia, University Erlangen-Nuremberg, Germany; Prof. Dinkel</i>
1990	<i>MSc, Université de la Sarre</i>

### Diplomas

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2009	<i>Unrestricted license as Anesthesiologist, Quebec, Canada</i>
2001	<i>Restrictive license, Quebec, Canada</i>
2000	<i>Registration in the UK, Specialist Register</i>
1998	<i>Certificate of the European Academy of Anesthesiologists (DEAA),</i>
1998	<i>Certificate in TEE</i>
1997	<i>Certified Anesthetist, Intensivist, Emergency doctor (Germany)</i>

### Other Certificates

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1998	<i>TEE diploma, University Heidelberg, Mannheim, Germany</i>
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### Residency

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1993 – 1997	<i>Anesthesiology, University Erlangen-Nuremberg, Germany</i>
1990 – 1993	<i>Cardiac Surgery, Hannover Medical School, Germany</i>

### Study of Medicine

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1983 – 1989	<i>M.D., Université de la Sarre, Germany</i>
5/1989 – 10/1989	<i>Centre Hospitalier du Vaud, Lausanne, Suisse</i>
1/1989 – 4/1989	<i>Centre Hospitalier Bâle, Suisse</i>
8/1988 – 12/1988	<i>Baylor College of Medicine, Houston, USA</i>

## ADMINISTRATION

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### **Administrative Tasks – INTERNATIONAL – GUEST REVIEWER- JOURNALS**

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- Canadian Journal of Anesthesia (*Can J Anaesth*)
- British Journal of Anaesthesia (*Br J Anaesth*)
- The Journal of American Society of Anesthesiologists (*Anesthesiology*)
- Anesthesia & Analgesia (*Anesth Analg*)
- The Annals of Thoracic Surgery (*Ann Thorac Surg*) as principal journals being guest reviewer.

*\* I have been guest reviewer (more than 3 requests per year) for these journals since 2003.*

### **Administrative Tasks – INTERNATIONAL – EDITORIAL BOARD or EDITOR**

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#### **◆ Print journals:**

- *Executive Editor: Anesthesia & Analgesia*
- *Section Editor: Anesthesia & Analgesia, Technology, Computing and Simulation*
- *Annals of Cardiac Anaesthesia, Editorial Board*
- *The International Journal of Ultrasound and Applied Techniques*
  - *Editor-in-Chief (past)*

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### **Administrative Tasks - INTERNATIONAL**

- **Executive Board, World Society of Intravenous anesthesia, Director, North-America**
- **Board of Society of Technology in Anesthesia**
  - Chairman of the Research Committee

### **Administrative Tasks - NATIONAL**

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- **ACUDA representative Research McGill (2009-2011)**

### **Administrative Tasks – Arnold and Blema Steinberg Medical Simulation Centre (till 2016)**

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- **Advisory committee**
- **Management committee**
- **Research committee**

### **Administrative Tasks – SPECIAL PROJECTS**

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|-----------|---|
| 2013      | <b>MUSE Unit McGill Simulation Centre – purchase and evaluation of ultrasound devices for medical students</b>  |
| 2001-2006 | <p><b>Responsible for Project ‘<i>Ultra Fast Track Cardiac Anesthesia</i>’</b></p> <p><i>more than 350 cases of open heart surgery per year</i></p> <ul style="list-style-type: none"> <li>• Immediate extubation in the OR</li> <li>• Creation of a special PACU for immediate po. care</li> <li>• Direct transfer of patients after cardiac surgery to the cardiac ward without ICU stay</li> <li>• Reduction of hospital stay costs: more than 400000 Can\$</li> </ul> |

*I initiated this project in collaboration with Dr. Prieto (Head of Cardiac Surgery, CHUM) in 2001 with the goal to improve perioperative management of cardiac surgical patients. The goal was threefold: scientific – evaluation of the impact of regional techniques and immediate extubation on postoperative outcome, educational – education of all*

*perioperative care providers (nurses, intensivists, respiratory therapists) in those new management strategies, economical – impact on surgical numbers and hospital stay. I attended numerous meetings and gave various lectures on the topic in order to establish these infrastructures. Physicians and nurses from Canada visited our centre in order to learn these techniques. I also initiated a nurse-driven project looking at the possibility to bypass ICU for postoperative patient care which was the object of several presentations in the nursing community.*

2004-2006      **Responsible for Anesthetic Exchange Program of elective periods for German Medical Students** (*cooperation with University Munich, Germany*)

### **Administrative Tasks - RESEARCH**

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**Website:** itag.com

#### **DIRECTOR of Intelligent Technology in Anesthesia Group (ITAG)**



- investigation of the automated anesthesia application
- development of new technologies in anesthetic monitoring

*The group develops 'intelligent' monitoring systems and novel monitoring scores.*

### **COMMITTEES**

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#### **FMSQ**

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Since 2023      **Member, Committee of AI in Healthcare**

#### **CIUSS Montreal-Nord**

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2016 – 2022      **Member, Comité exécutif, CMDP, CIUSSS North Montreal**  
 2014 - 2022      **Head of the OR committee, Hopital Fleury**  
 Since 2013      **Head of M&M committee, Hopital Fleury**  
 Since 2013      **Organizer, Journal Club, Hopital Fleury**

**McGill**

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2012-2015	<b>Member of Executive Committee, Arnold and Blema Steinberg Medical Simulation Centre</b>
2008-2012	<b>Member of Academic affairs Committee</b>
2006-2012	<b>Member of the Research Committee</b>

2008-2012                    **Chair of Equipment Committee MGH**

**Université de Montréal**

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2001-6                    **Member of the Research Committee**

2001-6                    **Member of Ethics committee, *Hôpital Hôtel-Dieu***

**University Erlangen-Nuremberg**

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1996-9                    **Member of Research Committee**  
*12 reunions of 2 – 3 hours per year*

**Member of Academic affairs Committee for the Resident teaching**

**PROFESSIONAL CERTIFICATIONS**

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August 2001            Collège des Médecins du Québec (License number: 01176)

December 1997        License to practice Anesthesia, Emergency medicine, Intensive Care in Germany and in the European Union

January 1990            License to practice medicine in Germany and in the European Union.

## RESEARCH

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### RESEARCH GRANTS

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*\*Principal investigator unless specified otherwise*

2022 'Bariatric simulator'	<b>Ronald Denis Foundation</b> 14000\$
Since 2022	<b>CQDM Grant – 660000\$</b> <b>NerveGPS</b>
2020-2022 'Machine learning for automated nerve recognition'	<b>MITACS Research-business development Grant</b> <b>30000\$</b>
2016-2019 'Development of a hybrid augmented-virtual reality surgical simulation environment.'	<b><i>Johnson and Johnson Educational Grant – 90000 Can\$</i></b> Co-applicant
2014-2017 'Establishing Competency-Based Education in Plastic Surgery Residency Training using a novel surgical simulation environment'	<b><i>ASERF interim Research Grant – 100000 Can\$</i></b> Co-applicant
2012-2014 'Development of a simulated teaching environment for plastic surgery.'	<b><i>Allergan Research Grant-50000 Can\$</i></b> Co-applicant
2010-2013 'Remote controlled anesthesia.'	<b><i>Programme de soutien à la recherche (PSR), volet : Soutien à des initiatives internationales de recherche et d'innovation(SIIRI)- 150000 Can\$</i></b>
2010-2014 'McSleepy – development of an automated anesthesia system.'	<b><i>NSERC –CHRP, Operating Grant – 400000 Can\$</i></b>
2010-2012 'Phonomyography as a monitor for compartment syndrome'	<b><i>DOD-US-Operating Grant – 130000 Can\$</i></b> Principal Applicant: Dr. G Berry Co-applicant (50000\$): Dr. Thomas M Hemmerling
2009 'McSleepy – the anesthesia robot.'	<b><i>National Instruments Medical Device Grant – 20000 \$</i></b>
2008 'Cerebral saturation during thoracic surgery with single-lung ventilation.'	<b><i>Association des Anesthésistes du Québec, AAQ -Bourse Rosario Denis – 5000Can\$</i></b>

- 2007 *Association des Anesthésiologistes du Québec (AAQ) Bourses de la foundation (co-applicant; principal applicant: Dr. JF Olivier; former Master Student under my supervision) 15000Can\$*  
 ‘The impact of cardiopulmonary bypass on microvascular perfusion in cardiac surgery.’
- 2006-2008 *Foundation of MUHC – McGill; 30000 Can\$ per year – operational funds*
- 2006 *Bristol-Myers Squibb Canada/CAS Career Scientist Award in Anesthesia and Peri-operative Medicine \$270,000*  
 ‘Characterization of the relationship between total intravenous anesthesia, and neuromuscular transmission and blockade.’
- 2006 *Society of Technology in Anesthesia Research Grant 5000 \$US*  
 ‘The Analgoscore: Development of a New Monitor Feedback Control of Intraoperative Pain.’
- 2005-2006 *Bourse Chercheur-clinicien junior Fonds de recherché en santé du Quebec (FRSQ) 34 627 Can\$*  
 ‘Phonomyography: a novel method for perioperative monitoring of neuromuscular transmission and blockade.’
- 2003 *CAS/Abbott Laboratories Ltd Career Scientist Award in Anesthesia \$120,000*  
 ‘Phonomyography as a New Method of Neuromuscular Monitoring for Research and Clinical Routine.’
- 2002 *Baxter Grant of Canadian Anesthesiologists Society (CAS): 20000 Can \$*  
 ‘Phonomyography of the Larynx.’
- 2001 *Baxter Grant of Canadian Anesthesiologists Society (CAS) : 20000 Can \$ (Co-applicant; principal applicant: Dr. Pierre Beaulieu)*  
 ‘Clinical and pharmacokinetic comparison between levobupivacaine, ropivacaine and bupivacaine in eye and orthopedic surgery.’
- 1999 *Organon Grant (University of Erlangen-Nuremberg) 15000 EURO*  
 ‘A new model of measuring neuromuscular blockade at five different muscles.’
- 1998 *INOMED Grant (University of Erlangen-Nuremberg, Young researchers competition) 10000 EURO*  
 ‘Intraoperative nerve monitoring for thyroid surgery: impact on postoperative complications.’

## AWARDS

- 2019 ***Charles Peter W. Warren History of Medicine Essay Prize of Royal College of Physicians and Surgeons of Canada***  
 The Evolution of Surgical Simulation: The Current State and Future Avenues for Plastic Surgery Education.  
 Plast Reconstr Surg. 2017 Feb;139(2):533e-543e. (Award for PhD student Roy Kazan, supervised)
- 2017 ***Award for outstanding paper, Annual Meeting of the American Society of Plastic Surgeons***  
 ‘Development of a Breast Reconstruction Training Environment’ (Award for PhD student Roy Kazan, supervised)
- 2014 ***STA Award, Annual meeting of the Society of Technology in Anesthesia 2014***  
 ‘NerveGPS-automated nerve recognition system’
- 2012 ***Finalist, Premio Venezia 2012***

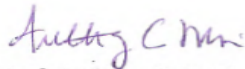
Dear Dr. Hemmerling,

Please allow me to extend my congratulations on your being a named finalist for the Premio Venezia 2012 by the Italian Chamber of Commerce in Canada in recognition of your significant research contributions arising from your collaborations with the University of Pisa.

McGill University is proud of this well-deserved recognition of your work and honoured to count you among our faculty.

Once again congratulations.

Regards,



Prof. Anthony C. Masi,  
 Provost, McGill University

- 2012 ***STA Award for Excellence in Technology Innovation, Annual meeting of the Society of Technology in Anesthesia 2012***  
 “The Magellan – first robotic ultrasound guided nerve block in humans”
- 2012 ***STA Award, Annual meeting of the Society of Technology in Anesthesia 2012***  
 “Automatic ultrasound nerve detection”
- 2011 ***Award of best scientific presentation –AAQ-EMC 2011***  
 ‘Tele-anesthesia – a solution for demand for specialists?’
- 2011 ***STA Clinical application Award, Annual meeting of the Society of Technology in Anesthesia 2011***  
 ‘Transcontinental anesthesia.’

- 2010 ***Smart monitoring – Best scientific presentation ATACC meeting (St. Pete Beach, Florida) ATACCC- Advanced Technology Applications to Combat Casualty Care – Department of Defense US-2010***  
“Robotic anesthesia –from automatic to remote control”
- 2009 ***STA Award for Excellence in Technology Innovation, Annual meeting of the Society of Technology in Anesthesia 2009***  
“A robot prototype for intravenous catheter placement”
- 2009 ***STA Award for Clinical Application of Technology, Annual meeting of the Society of Technology in Anesthesia 2009***  
“McSleepy – a completely automatic anesthesia delivery system”
- 2008 ***STA Award for Excellence in Innovation and Technology, Annual meeting of the Society of Technology in Anesthesia 2008***  
“Performance of a novel closed-loop propofol system.”
- 2008 ***Raymond Martineau Award in Cardiac Anesthesia, Annual meeting of the Canadian Society of Anesthesiology 2008***  
“Pulsatile cardio-pulmonary bypass does not improve microvascular flow: a preliminary report.”
- 2006 ***Raymond Martineau Award in Cardiac Anesthesia, Annual meeting of the Canadian Society of Anesthesiology 2006***  
“Desflurane causes more atrial fibrillation and tachycardiac after off-pump aorto-coronary bypass grafting (OPCAB) than sevoflurane.”
- 2001 ***Best Abstract (Annual meeting of the International Anesthesia Research Society 2001)***  
“The incidence of venous air embolism in patients undergoing neurosurgical procedure in the sitting position. Effect of PEEP release and position changing.”

## **TEACHING**

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### **McGill**

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Since 2016

ECSE 456 ECSE Design Project coordinator (8-20 students per year)

Dept. of Electrical and Computer engineering

### **Medical Student Elective**

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Kevin Song, University of Saskatchewan

2023 2 research electives; continuing implication in research in the laboratory

### **Undergraduate Teaching**

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#### **McGill**

2019-2022

McGill anesthesia student electives, Fleury site (6-8 students per year)

ELEC: Anesthesia: Anesthesia: Anesthesiology: Fleury Hospital

#### **McGill**

ADVANCED CARDIOVASCULAR PHYSIOLOGY:  
EXPERIMENTAL MEDICINE EXMD-506

2009-2012                      **Perioperative conditioning**

#### **University of Montreal**

2003-2006                      Pneumology (45 h per year)

From 2004                      MMD 2227/8 – Introduction in clinical examination for first and second  
year medical students (60 h per year)

### **Resident Theoretical Teaching**

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#### **McGill**

2007-2012                      **Block Coordinator:** “Pharmacology and Technology in Anesthesia”

### **Project SEUR - Université de Montréal**

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2004-2006                      **Responsible** for introduction of CEGEP students into the field of research  
and anesthesiology

*This project initiates young scholars to experience clinical skills and different research environments during the summer periods. It is aimed to show laboratory infrastructures, inform about working as an anesthesiologist and being a researcher. Normally, some 20 students spend one day (4 days per summer) with a researcher who organizes presentations and clinical visits for them.*

*During that period, I was responsible to organize these visits for the Department of Anesthesia.*

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## Supervision of PhD in Experimental Surgery (McGill)

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Since 2024 Oliver Caffrey  
**‘ROBOdoc – a new artificial physician’**  
**Director: Thomas M Hemmerling**

Since 2022 Robert Harutyunyan, MSc  
**‘Development of Nerve ROBOT’**  
**Director: Thomas M Hemmerling**

2013-2018 Roy Kazan, MSc, MD  
**‘Development of hybrid simulation reality for plastic surgery.’**  
**Director: Thomas M Hemmerling**

2010-2014 Mohamad Wehbe, MSc in Electric Engineering (Ecole Polytechnique)  
**‘Remote control anesthesia and muscle monitoring’**  
**Director: Thomas M Hemmerling**

## Supervision of MSc in Experimental Surgery (McGill) (TH sole supervisor)

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Since 2023 Eric Pelletier  
**‘AI for image analysis’**

Since 2023 Zeyan Tu  
**‘Simulator for closed loop anesthesia.’**

Since 2023 Georgiy Danilenko  
**‘Smart Laryngoscope’**

2021-2023 Noam Suissa  
**‘Machine learning for automated nerve recognition’.**

2021-2023 Sean Jeffries  
**‘Development of a simulator for bariatric surgery.’**  
**(Collaborators: Bariatric surgeons CIUSSS-NIM; Dr Robert Denis)**

2020-2023 Robert Harutyunyan  
**‘Automated fat distribution recognition in plastic surgery.’**

2018-2020 Albaraa Aljera  
**‘Development of an objective guiding system for fat removal.’**  
**Directors: Thomas M Hemmerling & Mirko Gilardino**

2017-2019 Alain Azzi  
 ‘Use of ultrasound for fat recognition in plastic surgery.’  
 Director: Thomas M Hemmerling

2016-2018 Alex Viesel-Mathieu  
 ‘Creation of a new simulation environment for breast reconstruction.’  
 Director: Thomas M Hemmerling

2012-2014 Joshua Morse  
 ‘Robotic nerve block system’  
 Director: Thomas M Hemmerling

2012-2014 Christophe Philippona  
 ‘Autonomous ultrasound image recognition.’  
 Director: Thomas M Hemmerling

2011-2013 Cedric Zaouter  
 ‘Conscious sedation – a novel hybrid sedation system’  
 Director: Thomas M Hemmerling

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*Supervision of Medical Students for Master in Science  
 (MSc, University of Montreal)*

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January 2003–June 2006 Guillaume Michaud  
 ‘Phonomyography in clinical routine: analysis of technical and clinical pitfalls.’  
 Principal investigator: Thomas M Hemmerling

- *Grant from Federation de la recherche en santé du Quebec for MD, MSc. – program for Guillaume Michaud (12000 \$Can per year)*
- *Best COPSE project (University of Montreal, 2005)*

**Supervision of Biomedical Engineering Students for Master Program  
 (MSc, University of Montreal)**

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*Since August 2006, all students work in my laboratory at McGill, all inventions are McGill lead inventions.*

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February 2006-Feb 2010 Germain Aoun  
 ‘Robotic anesthesia: robotic insertion of vascular access using ultrasound.’  
 Main investigator and co-director: Thomas M Hemmerling  
 Director : Mohamad Sawan, Ph.D., Université de Montréal

February 2006-September 2009 Samer Charabati  
 ‘Closed loop administration of propofol within neuronal network application of anesthesia.’

**Main investigator and co-director: Thomas M Hemmerling**

Director : Pierre Mathieu, Ph.D., Université de Montréal

June 2004-June 2006

Emile Salhab

‘Development of a novel score of intraoperative analgesia (ANALGOSCORE) and integrated closed-loop system for intraoperative analgesia.’

**Main investigator and co-director: Thomas M Hemmerling**

Director : Pierre Mathieu, Ph.D., Université de Montréal

June 2003-October 2005

Stéphane Deschamps

‘The staircase phenomenon at different muscles; Phonomyographic signal analysis and differences between muscles.’

**Main investigator and co-director: Thomas M Hemmerling**

Director : Pierre Mathieu, Ph.D., Université de Montréal

- *Master with honours (5% best)*

June 2002-September 2005

Bhou Chang

‘Phonomyography: development of an active prototype for neuromuscular monitoring with integrated two neurostimulators.’

Main investigator and co-director: Thomas M Hemmerling

Director: Robert Guardo, Ph.D., Université de Montréal

February 2002- July 2005

Guillaume Trager

‘Phonomyography: development of a passive prototype for neuromuscular monitoring without neurostimulators and Development of interactive user interface’

**Main investigator and co-director: Thomas M Hemmerling**

Director : Pierre Mathieu, Ph.D., Université de Montréal

**Supervision of Biomedical Science Students for Master Program  
(University of Montreal)**

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*Since August 2006, all students work in my laboratory at McGill, all inventions are McGill lead inventions.*

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June 2007-June 2009

Roy Kazan

‘Cerebral oxygenation in thoracic surgery.’

**Main investigator and director: Thomas M Hemmerling**

January 2004-June 2006

Jean-François Olivier

‘Regional techniques in cardiac anesthesia.’

**Main investigator and director: Thomas M Hemmerling**

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***Supervision of Undergraduate Students for Master in Science  
(MD, University Erlangen-Nuremberg, Germany)***

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*7 students (duration of supervision)*

**January 1999 – June 2000**                      **Christian Hanusa (1.5 years)**  
**‘A new model of measuring neuromuscular blockade at five different muscles.’**

**Principal investigator: Thomas M Hemmerling**  
 Collaborators: Joachim Schmidt, MD, Klaus Jacobi, MD

- ***Impact : publication***
- ***Grant Organon Inc : 15000 Euro***

**January 1998 – October 1998**                      **Christian Schurr (1 year)**  
**‘Intraoperative nerve monitoring for thyroid surgery: impact on postoperative complications.’**

**Principal investigator: Thomas M Hemmerling**  
 Collaborators: Joachim Schmidt, MD, Peter Klein, MD, Klaus Jacobi MD, Sara Dern, MD

- ***Impact : publication***
- ***Grant of the Foundation of the Department of Surgery( young researchers competition), University Erlangen-Nuremberg: 10000 Euro***

**February 1997 – June 1999**                      **Sven Walter (2.5 years)**  
**‘Development of a new method of monitoring NMB at the diaphragm’**

**Principal investigator: Thomas M Hemmerling**  
 Collaborators: Joachim Schmidt, MD, Klaus Jacobi MD

- ***Impact: publication***

**January 1997 – December 1998**                      **Peter Haferkamp (2 years)**  
**‘Can the sedative effect of sufentanil be treated by flumazenil?’**

**Principal investigator: Thomas M Hemmerling**  
 Collaborators: Klaus Jacobi, MD

- ***Impact: abstract***

**February 1996 – June 1997**                      **Tobias Zapke (1.5 years)**  
**‘Influence of different muscle relaxants as precurarizing drugs’**

**Principal investigator: Thomas M Hemmerling**  
 Collaborator: Klaus Tschaikowsky, MD

- ***Impact : publication***

**January 1996-June 1997**                      **Stephan Kern (1.5 years)**  
**‘Intraoperative treatment of diabetic patients-continuous GIK treatment vs bolus application’**

**Principal investigator: Thomas M Hemmerling**  
 Collaborators: Joachim Schmidt, MD, Klaus Jacobi, MD

- ***Impact: publication***

**January 1996-October 1999**                      **Tobias Wolf (3 years)**  
**‘Development of a new method of intraoperative nerve monitoring for thyroid surgery’**

**Principal investigator: Thomas M Hemmerling**  
 Collaborators: Joachim Schmidt, MD, Stephan Wolf, MD, Klaus Jacobi, MD

- ***Impact : publication***
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## Supervision of Research Fellows

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February – September 2019      Theophania Giota  
 MASTER IRIV / TELECOM PHYSIQUE STRASBOURG,  
 Univ de Strasbourg, France

**‘SatMAP – a new automated fat assessment tool.’**

February – September 2016      Sinan Orkut  
 MASTER IRIV / TELECOM PHYSIQUE STRASBOURG,  
 Univ de Strasbourg, France

**‘Virtual reality for a surgical simulation environment.’**

February – September 2015      Thibaud Benedetti, *CERI / UFR-ip Sciences, Technologies,  
 Santé  
 Université d'Avignon et des Pays de Vaucluse*

**‘Development of a NERVE GPS.’**

February – September 2015      Thomas Gabriel, *Université Jean Monnet, St. Etienne*  
**‘PMG as standard monitoring method for muscle responses.’**

January – December 2014      Etrusca Brogi, *Università di Pisa, Italia*  
**‘Meta-analysis and review of TAP blocks.’**

January 2013-July 2014      Marilu Giacalone, *Università di Pisa, Italia*  
**‘Simulation and performance assessment in the health care system.’**

April 2012-July 2012      Gianmarco Romano, *Università di Napoli, Italia*  
**‘Robotic regional anesthesia’**

April 2012-July 2012      Fabrizio Cirillo, *Università di Napoli, Italia*  
**‘Decision support systems’**

Nov 2011-Nov 2012      Nora Terrasini, *Università di Pisa, Italia*  
**‘Remote preoperative assessment’**

Jan 2011 - Dec 2011      Riccardo Taddei, *Università di Pisa, Italia*  
**‘Manual robots in anesthesia.’**

Jan 2010 – Dec 2010      Erik Arbeid, *Università di Pisa, Italia*  
**‘Hybrid sedation system.’**

Sep 2009- April 2009      Cedrick Zaouter, *Università di Pisa, Italia*  
**‘Closed loop systems in critical care and anesthesia.’**

July 2009- Dec 2009                      Luca Bevilacqua, *Università di Pisa, Italia*  
**‘Cognitive dysfunction in thoracic surgery.’**

January 2009- Dec 2009                      Carmelo Minardi, *Università degli Studi di Catania, Italia*  
**‘Automatic systems in anesthesia.’**

January 2008- July 2008                      Gianluca Rosso, *Università degli Studi di Catania, Italia*  
**‘Potency of rocuronium at the corrugator supercillii muscle.’**

January – December 1998                      Joachim Schmidt, *University of Erlangen-Nuremberg*  
**‘Neuromuscular monitoring in children at different muscles.’**

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## **Supervision of Biomedical/Engineering Students for FINAL YEAR PROJECT**

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Summer 2007	Mohamad Makhlof – ‘Design and construction of a novel intubation aid for bedside intubation.’ <b>Main investigator: Thomas M Hemmerling</b>
Jan – Sept 2005	Nicolas Gay – ‘Physical analysis of different acoustic sensors for phonomyographic monitoring’ <b>Main investigator: Thomas M Hemmerling</b> Cooperation with Polytechnical Faculty of University of Toulouse, France; Nicolas Gay as a fully funded exchange student
Summer 2005	Evelyne Choucri – ‘The arrhythmogenic propensities of desflurane in cardiac surgery’ <b>Main investigator: Thomas M Hemmerling</b>
Summer 2004	Nhien Lê – ‘Immediate extubation and preconditioning in cardiac surgery: isoflurane vs. sevoflurane’ <b>Main investigator: Thomas M Hemmerling</b>

## **Course lecturer McGill (including supervision of undergraduate students)**

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<b>EXMD 506</b>	<b>Physiology</b>
<b>ECSE 474/475</b>	<b>Design Projects; Dept. of Computer Engineering</b>

**(Supervision of 17 students since 2010)**

## **Mentorship, McGill Mentor program**

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### **Since 2024**

Mentor for College of Graduate Mentorship

Current mentees:

Hamideh Rezvani Alanagh

Isra'a Haj Hussein

Wen Da Lu

I also have since June 2012 mentored the following undergraduate students:

- Jacqueline Varey
- Peter Lee
- Yuzhu Hou
- Saif Bani Malhem
- Midas Kang

## PROFESSIONAL AFFILIATIONS

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- Canadian Society of Anesthesiology (**CAS**)
- Society of Technology in Anesthesia (**STA**)
- Society of Cardiovascular Anesthesiologists (**SCA**)
- International Anesthesia Research Society (**IARS**)
- American Society of Anesthesiology (**ASA**)

Curriculum Vitae

## ACTIVITY AS REVIEWER AND EDITOR

### Reviewer for governmental-external grant agencies

- Natural Sciences and Engineering Research Council of Canada (NSERC) to request your assistance in reviewing the following Discovery Grant proposal.

Applicants to the Discovery Grants Program must present a program of research that is eligible under NSERC's mandate, which is to promote and assist research in the natural sciences and engineering, other than health. The objectives of the research program must be to advance knowledge in the natural sciences or in engineering.

- Fonds de recherche du Québec – Santé  
The Fonds de recherche du Québec – Santé (FRQS) is a non-profit agency created under the Act respecting the Ministère de l'Éducation, de l'Enseignement supérieur et de la Recherche. It is a mandatary of the Québec government and is administered by a board of directors whose members are appointed by the Cabinet.

Agence Nationale de la Recherche (ANR)

All scientific communities and all public and private actors involved in French research, including small and medium-sized enterprises (SMEs) and very small enterprises.

CE19 - Technologies pour la santé

NSERC – CHRP

- Natural Sciences and Engineering Research Council of Canada

CHRP plays a critical role in creating and strengthening collaborations among researchers in the natural sciences, health sciences, and engineering. By bringing together interdisciplinary research teams with strategic stakeholders, we can move forward towards new technologies, better health care outcomes, and a new generation of highly qualified trainees.

- CIHR  
Canadian Institutes of Health Research (CIHR) support and promote high-quality research in a wide variety of disciplines and areas.

### Reviewer for McGill-related grants and competitions

- Fellowship competition. IRR program  
Injury repair program aims to foster interdisciplinary research in the health and life sciences across McGill University.
- Student competition of the RI-MUHC.  
The RI-MUHC, through its annual Studentship Competition, aims to support graduate students and post-doctoral trainees with exceptional potential for future achievement and productivity.
- McGill Dobson Start-UP Competition, in the new Health Sciences Stream.

The McGill Dobson Cup powered by National Bank and hosted by the McGill Dobson Centre for Entrepreneurship is McGill's flagship startup competition that enables emerging McGill entrepreneurs to compete for over \$150,000 in prize money

**Journal list – reviewer activity in the present and past**

Anesthesiology  
British journal of anaesthesia : BJA  
Anesthesia and analgesia  
Anaesthesia  
Regional anesthesia and pain medicine  
Acta Anaesthesiologica Scandinavica  
Canadian journal of anesthesia  
European journal of Anaesthesiology  
Journal of cardiothoracic and vascular anesthesia  
Journal of clinical anesthesia  
Anaesthesia and intensive care

Journal of Clinical Monitoring and Computing

BMJ Open

Examples of non-anesthesia journals

Aesthetic Surgery Journal  
Surgery  
Journal of Plastic surgery  
Journal of Plastic Surgery and Hand Surgery  
Annals of Thoracic Surgery

**Experience in Journal Editing**

Annals of Cardiac Anaesthesia,  
Editorial Board

The International Journal of Ultrasound and Applied Techniques  
Editor-in-Chief (past)

Journal of Anesthesia & Clinical Research (Guest Editor)

## Present scientific status: performance evaluation based on *h-Index*

### Current *h-Index*: 38



**TM Hemmerling** ✎

Associate Professor, McGill University

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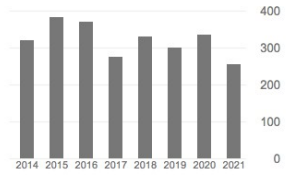
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<input checked="" type="checkbox"/>			
<input checked="" type="checkbox"/>	<b>Evidence basis for regional anesthesia in multidisciplinary fast-track surgical care pathways</b>	228	2011
	F Carli, H Kehlet, G Baldini, A Steel, K McRae, P Slinger, T Hemmerling, ... Regional Anesthesia & Pain Medicine 36 (1), 63-72-63-72		
<input checked="" type="checkbox"/>	<b>Influence of pneumoperitoneum and patient positioning on respiratory system compliance</b>	221	2001
	R Rauh, TM Hemmerling, M Rist, KE Jacobi Journal of clinical anesthesia 13 (5), 361-365		
<input checked="" type="checkbox"/>	<b>Videolaryngoscopy as a new standard of care</b>	151	2015
	C Zaouter, J Calderon, TM Hemmerling British Journal of Anaesthesia 114 (2), 181-183		
<input checked="" type="checkbox"/>	<b>Brief review: Neuromuscular monitoring: an update for the clinician</b>	146	2007
	TM Hemmerling, N Le Canadian Journal of Anesthesia 54 (1), 58-72		
<input checked="" type="checkbox"/>	<b>Reduced cerebral oxygen saturation during thoracic surgery predicts early postoperative cognitive dysfunction</b>	131	2012
	L Tang, R Kazan, R Taddei, C Zaouter, S Cyr, TM Hemmerling British journal of anaesthesia 108 (4), 623-629		

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Based on funding mandates

Average full professor Anesthesia *h-index*: 16  
(British Journal of Anaesthesia 106 (3): 325–30 (2011))

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## BOOK CHAPTERS

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## CONFERENCE PROCEEDINGS

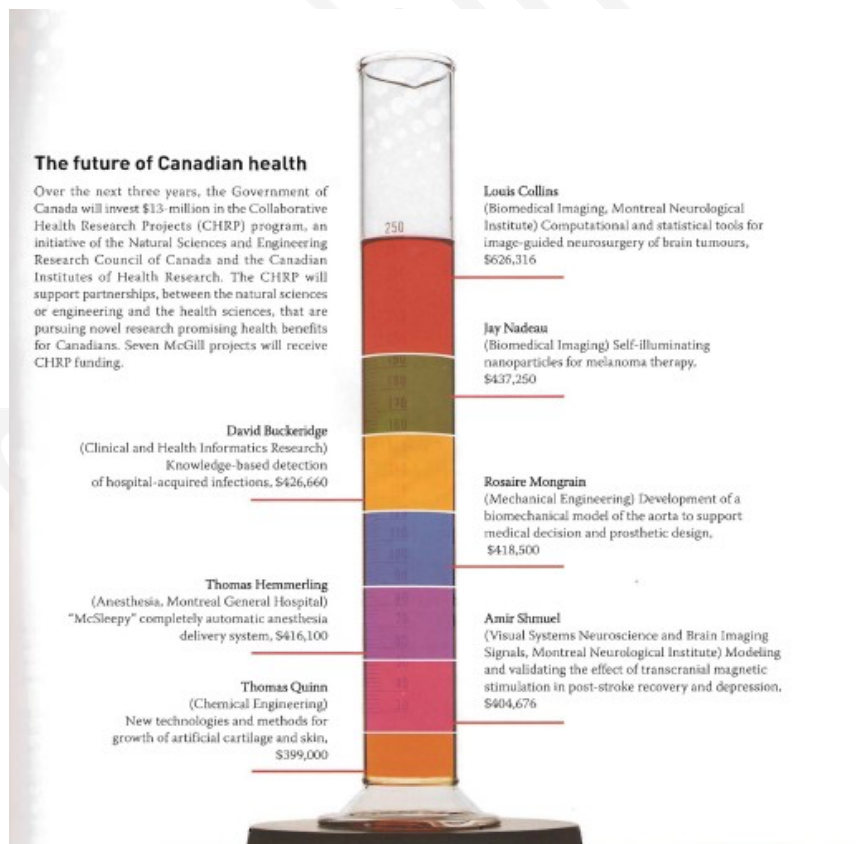
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## WORLD FIRSTS

- 2008 World First – McSleepy-completely automatic anesthesia delivery
- 2010 World First – Transcontinental anesthesia
- 2010 World First – Completely robotic surgery and anesthesia
- 2010 World First – Kepler intubation system – intubation robot
- 2010 World First – Magellan – nerve block robot

What others say...

- McSleepy was voted by New York Times Magazine as one of the notable ideas of 2008: ‘performing the world’s first totally automated administration of an anesthetic.’
- On the Spanish website ‘Tecnología e Medicina a favor da vida’, ground-breaking inventions from stethoscope to robots are listed, starting in 1816 with the invention of the stethoscope and finishing in 2010 with the world’s first completely robotic surgery (DaVinci meets McSleepy at the MGH).
- In the ASA newsletter from April 2009, Dr. Joshi, from Dallas, TX, features McSleepy predominantly in his article: How will anesthesiology practice be impacted by the coming health care revolution?
- McSleepy equally features predominantly in Prof. Miller’s 47th Annual Rovenstine Lecture (Anesthesiology 2009; 110: 714-20) entitled: ‘The pursuit of excellence.’ He asks his readers: ‘How will developments such as ‘Dr. McSleepy’ influence the future of anesthesiologists?’



McGill Headway 2010