Landan P. MacDonald

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Education

Dalhousie University; Saint John, New Brunswick, Canada
M.D., Doctor of Medicine, Class of 2019

Colorado State University; Fort Collins, Colorado, USA
M.Sc., Atmospheric Science, 2015, GPA: 3.98/4.00

Dissertation: *Emission Rates of Volatile Organic Compounds from Oil and Gas Wells in Colorado.* This project involved taking field measurements, processing the data and using computer models to predict concentrations of hazardous air pollutants downwind of well pads.

Dalhousie University; Halifax, Nova Scotia, Canada
B.Sc. First Class Honours, Physics, 2013, GPA: 3.85/4.30

Honours Thesis I: *Understanding the Effects of Human-Generated Aerosols on Precipitation.*
Used a cloud-resolving model to perform experiments on clouds.

Honours Thesis II: *Cloud Aerosol Microphysics Parcel Model.*
Created my own cloud-aerosol microphysics model to perform sensitivity experiments on clouds.

Professional Experience

International Federation of Medical Students SCOPE Exchange **Jul 2017**
Location: Riga, Latvia
Position: Clinical Clerk
Worked in a Trauma and Orthopedic Surgery Hospital by assisting in ORs and developing surgical skills.

Research in Medicine **Jun 2016 – Aug 2016**
Location: Saint John, NB
Position: Student Researcher
Worked with Dr. Erik Scheme and Dr. Keith Brunt to perform a single-blinded pilot study with the goal of creating an algorithm to detect adverse cardiovascular events.

Colorado State University **Jan 2015 – May 2015**
Location: Fort Collins, CO
Position: Teaching Assistant
Helped teach a graduate level computer programming course for atmospheric scientists.

Colorado State University **Aug 2013 – Jul 2015**
Location: Fort Collins, CO
Position: Graduate Research Assistant
Performed research via data collection, analysis, and computer modelling to understand the effects of hydraulic fracturing on atmospheric emissions.

Jeffrey Pierce Group **May 2012 – Aug 2012; May 2013 – Aug 2013**
Location: Dalhousie University, Halifax, NS
Position: Undergraduate Research Assistant
Performed cloud-resolving model simulations to reproduce marine stratus clouds and estimate the sensitivity of precipitation to aerosol concentrations.

Jeffrey Dahn Lab **May 2011 – Aug 2011**

Location: Dalhousie University, Halifax, NS

Position: Undergraduate Research Assistant

Optimized impregnation process for activated carbons with the goal of creating more efficient breathing mask material.

Horizon Health Network **Jun 2009 – Aug 2009; May 2010 – Aug 2010**

Location: Saint John, NB

Position: Summer Student in Therapeutic Services

Created and analyzed databases for various departments in multiple hospitals and worked with patients in Cognitive Assessment Management.

Honours and Awards

JJ Carroll Travel Fund Bursary **May 2017**

Awarded for presentation of Interprofessional Education Research at the Canadian Conference on Medical Education ($750).

DMNB Student Conference Funding **May 2017**

Awarded for the presentation of original urology research at the American Urological Association Meeting in Boston, MA ($750).

DMNB Student Conference Funding **Jul 2016**

Awarded for the presentation of original urology research at the Canadian Urological Association Meeting in Vancouver, BC ($750).

Dalhousie Medicine NB Summer Student Research Program Studentship **Jun 2016**

Awarded to Dalhousie Students who perform medical research ($5,000).

Dr. Richard & Lynne Winter Scholarship **Sep 2015**

Awarded to a student accepted into Dalhousie Medical Program on the UNB Saint John campus. Based on financial need and scholastic attainment ($5,000).

NSERC Canada Graduate Scholarship **Aug 2013**

Scholarship for high caliber scholars who are engaged in eligible Masters programs ($17,500 over 12 months).

NSERC Undergraduate Student Research Award **May 2013**

Awarded to undergraduate student to stimulate interest in research in the natural sciences and engineering ($4,500 over 1 summer).

Dean's List **Sep 2009 – May 2013**

Each semester of my undergraduate degree at Dalhousie University.

Canadian Society of Exploration Geophysicists Trophy **Oct 2012**

Award for best speaker in earth, ocean and atmospheric physics at Canadian Undergraduate Physics Conference in Vancouver, BC.

Darrell Montgomery Memorial Prize **May 2012**

Awarded to a 3rd year student showing a love of experimentation, qualities of leadership and participation in student activities in Physics related areas.

Burgess McKittrick Summer Research Studentship **May 2011**

A four month work term awarded to outstanding students in the Honours Physics Program.

Peer Reviewed Journal Articles

[9] Michael Organ, **Landan MacDonald**, Michael A. S. Jewett, Henry Ajzenberg, Ashraf Almatar, Mohamed Abdolell, and Ricardo A. Rendon. "Prediction of Malignant Disease in Patients with Small Renal Masses". *Canadian urological association journal, accepted*, January 2019.

[8] **Landan MacDonald**, Luke Armstrong, Kyle Lehmann, Matthew Acker, and Gavin Langille. "Outcome analysis of patients with Peyronie's disease who elect for non-invasive treatment". *Journal of urology, submitted*, 2018.

[7] **Landan MacDonald**, Arsineh Hecobian, Andrea Clements, Kira Shonkwiler, Noel Hilliard, Bradley Wells, Jay Ham, Jeffrey Pierce, and Jeffrey L. Jr. Collett. "Methane Emissions from Unconventional Natural Gas Well Drilling and Completion Activities are dominated by Flowback Emissions". *Proceedings of the national academy of sciences, in preparation*, 2018.

[6] **Landan MacDonald**, Jesse Ory, and Gavin Langille. "Non-Invasvie Management of Peyronie's Disease". *Sexual medicine reviews, in preparation*, 2018.

[5] Bradley L. Wells, **Landan MacDonald**, Kira Shonkwiler, Andrea Clements, Arsineh Hecobian, Jay Ham, Jeffrey R. Pierce, and Jeffrey L. Jr. Collett. "Estimating Hydrocarbon Emissions Using Stationary Tracer Techniques". *In preparation*, 2018.

[4] D. J. Delene, Andrea Neumann, Alexei Korolev, Matt Freer, Olivier Henry, Jonathan Crosie, Stéphanie Gagné, **Landan MacDonald**, Aaron Bansemer, Andrew Heymsfield, Colin Gurganus, Ted Fisher, Wei Wu, and Greg McFarquhar. "Towards Community Software Development to Process and Analyze Cloud Physics In-situ Aircraft Data". *Bulletin of the american meteorological society, in preparation*, 2016.

[3] Stéphanie Gagné, **Landan MacDonald**, W. Richard Leaitch, and Jeffrey R. Pierce. "Software to analyze the relationship between aerosol, clouds, and precipitation: SAMAC". *Atmospheric measurement techniques*, 9(2):619–630, 2016.

[2] Jock W.H. Smith, Matt McDonald, Jennifer V. Romero, **Landan MacDonald**, J.R. Lee, and Jeffrey .R. Dahn. "Small and wide angle X-ray studies of impregnated activated carbons". *Carbon*, 75:420–431, 2014. ISSN: 00086223.

[1] Jennifer V. Romero, Jock W.H. Smith, Braden.M. Sullivan, **Landan MacDonald**, Lisa M. Croll, and Jeffrey R. Dahn. "Evaluation of the SO2 and NH3 gas adsorption properties of CuO/ZnO/Mn3O4 and CuO/ZnO/NiO ternary impregnated activated carbon using combinatorial materials science methods". *Acs combinatorial science*, 15(2), 2013. ISSN: 21568952.

Presentations

[13] **Landan MacDonald**, Luke Armstrong, Kyle Lehmann, Matthew Acker, and Gavin Langille. "Outcome analysis of patients with Peyronie's disease who elect for non-invasive treatment". In *American urological association meeting 2017*. Boston, MA (Moderated Poster Presentation), May 2017.

[12] **Landan MacDonald**, Satinder Gill, Sohrab Lutchmedial, Erik Scheme, and Keith Brunt. "Drug Adherence Detection using a Blood Pressure Device as a Strategy to Improve Patient Care". In *New brunswick health research foundation conference 2017*. Moncton, NB (Poster Presentation), November 2017.

[11] **Landan MacDonald**, Sean Gormley, Amy Brown, Madison Howatt, Tammie Fournier, and Akram Jaffar. "A workable model of a near-peer inter-professional education in anatomy". In *Interprofessional health research day 2017*. Saint John, NB (Poster Presentation), March 2017.

[10] **Landan MacDonald**, Sean Gormley, Amy Brown, Madison Howatt, Tammie Fournier, and Akram Jaffar. "A workable model of a near-peer inter-professional education in anatomy". In *The canadian conference on medical education*. Winnipeg, MB (Poster Presentation), May 2017.

[9] **Landan MacDonald**, Luke Armstrong, Kyle Lehmann, and Gavin Langille. "Outcome analysis of patients with Peyronie's disease who elect for non-invasive treatment". In *71st canadian urological association annual meeting*. Vancouver, BC (Moderated Poster Presentation), June 2016.

[8] **Landan MacDonald**, Bradley Wells, Arsineh Hecobian, Andrea Clements, Kira Shonkwiler, Jeffrey R. Pierce, Jay M. Ham, and Jeffrey L. Jr. Collett. "Testing Emission Rate Determining Methods via Controlled Field Experiments". In *96th american meteorological society annual meeting*. Phoenix, AZ (Oral Presentation), January 2015.

[7] **Landan MacDonald**, Stéphanie Gagné, W. Richard Leaitch, and Pierce. "Measurements and Modelling Effects of Aerosol on Marine Stratiform Clouds". In *Atmospheric chemistry group meeting, colorado state university*. Fort Collins, CO (Oral Presentation), February 2014.

[6] **Landan MacDonald**, Stéphanie Gagné, W. Richard Leaitch, and Jeffrey R. Pierce. "Understanding the Effects of Human Generated Aerosols on Precipitation.". In *University of colorado research symposium*. Boulder, CO (Poster Presentation, November 2014.

[5] **Landan MacDonald**, Arsineh Hecobian, Andrea Clements, Kira Shonkwiler, Jeffrey R. Pierce, Jay M. Ham, and Jeffrey L. Jr. Collett. "Estimating Front Range VOC Concentrations using AERMOD". In *Young scientist symposium on atmospheric research*. Fort Collins, CO (Oral Presentation), October 2014.

[4] **Landan MacDonald**, Stéphanie Gagné, W. Richard Leaitch, and Jeffrey R. Pierce. "Understanding the Effects of Human Generated Aerosols on Precipitation". In *Young scientist symposium on atmospheric research*. Fort Collins, CO (Poster Presentation), September 2013.

[3] Stéphanie Gagné, **Landan MacDonald**, W. Richard Leaitch, and Jeffrey R. Pierce. "Aerosol-Clouds- Precipitation: Aircraft Measurements on the East Coast of Canada". In *American association of aerosol resaerch annual meeting*. Minneapolis, MN (Oral Presentation), October 2012.

[2] **Landan MacDonald**, Stéphanie Gagné, W. Richard Leaitch, and Jeffrey R. Pierce. "Modelling of a Marine Stratocumulus Cloud". In *Atmospheric science group meeting*. Halifax, NS (Oral Presentation), August 2012.

[1] **Landan MacDonald**, Stéphanie Gagné, W. Richard Leaitch, and Jeffrey R. Pierce. "Modelling of a Marine Stratocumulus Cloud". In *Canadian undergraduate physics conference*. Vancouver, BC (Oral Presentation), October 2012.

Extracurricular Activities

Dalhousie Medicine Accreditation 2017 Co-author for the Independent Student Analysis. A report that examined the satisfaction of students at Dalhousie Medicine New Brunswick Campus (2017).

Dalhousie Medicine Interviewer Interviewed medical student candidates for the Dalhousie Medicine Class of 2021 as part of the Multiple Mini-Interview format (2016).

Dalhousie Medicine New Brunswick Charity Golf Classic Responsible for creation of website, poster and logistics for this 6th annual charity event (2016).

DMNB Communications and Technology Representative Part of the Dalhousie Medical Students' Society council. Responsible for all communications of the DMSS members in New Brunswick, and managing the DMSS website (2016 – 2017).

Respiratory Therapy Anatomy Instructor Developed and taught respiratory therapy students anatomy relevant to their field (2016 –).

DMNB Surgery Interest Group Executive member of the committee. Organized and helped teach a suturing evening for MED1 and MED2 students (2016 – 2017).

Colorado State Engineering Student Technology Committee Part of committee that decides on where to allocate extra technology fees from engineering students (2014 – 2015).

American Association for Aerosol Research Colorado State University Student Chapter President. I was responsible for fundraisers, organizing journal clubs, and group outings to various scientific centers in Colorado (2014 – 2015).

"School is Cool" Summer BBQs Organizer of BBQs to raise money for this charity to provide much needed supplies to young students around Fort Collins, Colorado (2014).

Young Scientist Symposium on Atmospheric Research Student organizer for annual conference (2014).

CSUnity Planting trees, painting houses, visiting with senior citizens (2014).

Earth Explorers Scientist working with sixth graders at Trail Ridge Middle School, Longmont, Colorado to teach the importance of science (2014).

Dalhousie Physics Society President. Responsible for organizing meetings, presenting faculty awards and managing funds (2013).

Dalhousie Physics Society Social Representative. Responsible for hosting a "Physics Phryday" event every month and organizing summer BBQs to earn money for society (2012).

Dalhousie Heart and Stroke Foundation Executive Member (2013).

Dalhousie Allies Provide support for other students regarding their sexuality without fear of judgement (2011 –).

IWK Health Center Volunteer Worked at information desk to answer questions and provide directions to patients, families and visitors (2010 – 2011).

Saint John Regional Hospital Volunteer at information desk (2006 – 2008).

Individual Activities

Running I aim for 5 km per day on average (2015 –).

Computer Programming Create various programs to improve my life and the lives of others. A subset of my programs can be found here: `https://github.com/lannymac` (2012 –).

Cycling Fort Collins, Colorado was an extremely bike-friendly town with many bike paths to explore that inspired me to take up the sport (2013 –).

Downhill Skiing Living near the Rocky Mountains provided an opportunity to ski that I could not pass up (2013 –).

Hiking The Rocky Mountains have provided many trails and mountain peaks to summit. I have also been an avid hiker throughout my childhood and undergraduate career.

Skills

Programming Languages `Python`, `C`, `C++`, `FORTRAN`, LaTeX, `bash`, `HTML`, `CSS`.

Operating Systems Mac OS, Linux, Microsoft Windows.

Software Wolfram Mathematica, MATLAB, LabVIEW, Photoshop.

Atmospheric Computer Models AERMOD, System for Atmospheric Modelling, OpenFOAM, Simple Gaussian Plume models.

GitHub Repository `https://github.com/lannymac`