

Rémi Kahwaji  
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EDUCATION:

**Bachelor of Engineering, Honors Mechanical Engineering** 2009-2013  
McGill University, Montreal QC, Canada

**Study Abroad Program, Mechanical Engineering** 2011-2012  
École Polytechnique Fédérale de Lausanne, Lausanne, Switzerland  
Université de Lausanne, Lausanne, Switzerland

**Baccalauréat Français, Mention Très Bien** 2006-2009  
**Section Scientifique Spécialité Math et Option Audio-visuel**  
Grand Lycée Franco- Libanais, Beirut, Lebanon

LANGUAGES:

English (Fluent), French (Fluent), Arabic (Fluent), Italian (Basic)

COMPUTER SKILLS:

**Programming languages**

Java, C++, MATLAB, LabView

**Simulation and Computer-Aided Design (CAD) software programs**

Solid Works, ParaView, CATIAv5

**Project management programs**

GnuPlot (specialized function plotter), LaTeX (Document Preparation System), Excel, Power point (Microsoft Office)

WORK, DESIGN AND RESEARCH EXPERIENCE:

**Undergraduate Thesis at McGill University in fluid-structure interaction (In Progress)** 2013  
Study of Dynamics of pipes conveying fluid with non-classical boundary conditions, flexibly constrained at the ends

**Independent undergraduate research with Professor James Williams from MIT (In Progress)** 2013  
Method of Characteristics in Partial Differential Equations

**Founder and leader of McGill Wind Pump design team** ([windpumpinitiative.mcgilleus.ca](http://windpumpinitiative.mcgilleus.ca)) 2012-2013

- Designing a cheap and sustainable wind mill that pumps water in developing regions in Africa
- Organizing design team to finalize details of conceptual design and work on implementation
- Project selected for presentation at the McGill Sustainability Symposium 2013, MRE congress 2013 (Athens)

**Work with the Space Generation Advisory Council (SGAC) as the first National Point of Contact for Lebanon** 2011-2013

- Provide a connection between the country I represent and the SGAC
- Regular regional meetings on skype with other NPoCs
- Built a page for Lebanon (<http://spacegeneration.org/index.php/sgac-regions/middle-east/lebanon>)

**Teaching Assistant at McGill University in Advanced Calculus for Engineering** 2011-2012

- Lead weekly tutorials of about 30 students, reviewed notions learnt in class and gave practice problems
- Graded assignments and other submitted work
- Organized intensive final review sessions , ‘crash course’ of about 200 students where the whole semester material was covered in three hours

**Author of semi-scientific research paper “Terraforming, a reality or science fiction?”** 2011

- Paper selected for the 62nd International Astronautical Congress (South Africa 2011)
- 15-minute oral presentation (Q&A time included) in the context of the “habitation throughout the solar system” session, part of the “Symposium on Space Activity and Society” at the IAC2011
- Paper presented at American University of Beirut’s stand in “Science Day 2011” at the Beirut hippodrome

**Member of the McGill Lunar Excavator Team** ([www.lunarex.mcgill.ca](http://www.lunarex.mcgill.ca)) 2010-2011

- Competed in the “NASA 2011 Lunabotics mining competition” at the Kennedy Space Center (Orlando)
- Participation in the conceptual design process as well as the design using SolidWorks
- Building of mechanical components using aluminum sheets, foam, and steel
- Participation in the testing process, i.e digging the sand by the robot, collecting it and calculating its mass

**Undergraduate researcher at University of Kassel, Germany, in Finite Element Analysis**

2012

- Worked with the Maxwell equations to study the material properties of an iron bar subject to changing electro-magnetic field conditions
- Worked on the numerical modeling of the problem using the FEM
- Used numerical method techniques on MATLAB to solve PDEs of the electric and magnetic fields

**Undergraduate researcher at University of Luxembourg in Discrete Element Analysis**

2011

- Contributing in the development of computational models using object oriented techniques to predict the thermal conversion, combustion or formation of pollutants processes
- Work on the verification of diffusive, gaseous species transport in Discrete Element Method (DEM)
- Work on the comparison of the analytical and numerical solution of the diffusion PDE using Matlab
- Use of C++/ParaView/Gnuplot/Excel for respectively modeling, simulating and outputting data of different cases of time varying physical processes with initial and boundary conditions

**VOLUNTARY WORK AND COMMUNITY INVOLVMENT:**

- Founding member of “Social Erasmus Lausanne” selected with eight other people to coordinate local volunteering activities for students during exchange programs, built conceptual website for the program
- First aid formation and volunteering in Switzerland, section of “Lausanne Samaritains”
- Volunteer with ISEB Space Ambassadors (International Space Education Board) for outreach in South Africa, performed general organizing tasks and taught 12 year old kids how to build a mini solar car
- Educational outreach about engineering to Aboriginal school children in Montreal, at McGill University
- Activist with the international environmental and social focused NGO “IndyAct”
- Participated in tree planting events in urban areas with “American University of Beirut” Greenpeace club
- Participation with Engineers Without Borders Canada team in 15 km cross country “run To end Poverty 2012” which includes promoting the organization and fundraising for projects in Africa
- Volunteering with the Youth of the Order of Malta, taking care of heavily disabled people

**AWARDS**

- DAAD-RISE scholarship for a summer research internship at Universität Kassel (2012)
- Mobility Awards recipient twice, granted by McGill University for a study away program at Ecole Polytechnique Fédérale de Lausanne (2011/2012) and for an undergraduate research project at University of Luxembourg (2011)
- Antje Graupe Prior International SURE Award for the participation in the DAAD-RISE program (2012)
- Member of Golden Key International Honor Society, for placing in the top 15% students of my program
- Finalist in the Dalai Lama Fellowship competition for the McGill windmill project mentioned above

**EXTRACURRICULAR ACTIVITIES AND INTERESTS:**

- Member of the McGill Institute of Aerospace Engineering
- Membership and involvement in conferences with the American Institute of Aeronautics and Astronautics (AIAA), Canadian Aeronautics and Space Institute (CASI) (Canadian Aerospace Student Summit hosted in Montreal ), McGill Institute for sustainability in Engineering and design, as well as TEDxMcGill, and a General interest in Math public outreach conferences at the CRM (Centre de Recherches Mathématiques de Montréal)
- Music: Drums, percussions, solfège and music theory for 5 years in the National Conservatory of Lebanon
- Sports: Athletics: tracking, cross country running at a competitive level  
Soccer: captain of an intramural team at McGill, freestyle soccer  
Outdoor: advanced sailing, bungee jumping, camping and outdoor survival training, indoor and outdoor rock climbing, Abseiling, hiking, canoeing, swimming, skiing