

# Ken M. Nsiempba

(514) 806 1410

[kmnsiemp@uwaterloo.ca](mailto:kmnsiemp@uwaterloo.ca)

<https://botengu.github.io/portfolio/>

## OBJECTIVE

I am a passionate research student with a great balance of interpersonal and technical skills. I have a lot of academic/industrial experience in 3D printing and computational design.

## Digital Design Tools for Additive Manufacturing

## EDUCATION

### Master of Applied Science

Sept. 2018 – Oct. 2020

Mechanical and Mechatronics Engineering  
Multi-Scale Additive Manufacturing Laboratory  
University of Waterloo, Waterloo, ON  
Average of 91%

My thesis focused on integrating additive manufacturing constraints in topology optimization programs

### International Academic Exchange

Jan. 2020 - Mars 2020

Mechanical Engineering  
Nanyang Technological University, Singapore  
My team and I investigated the existing and potential applications of artificial intelligence in 3D printing

### Bachelor of Mechanical Engineering

Sept. 2013 - May 2018

McGill University, Montréal, QC  
Cumulative GPA of 3.56/4.0 - May 2018

### International Academic Exchange

July 2016

Beihang University, Beijing, China

### Diploma of College Studies

Aug. 2011 - May 2013

Pure and Applied Sciences, Marianopolis College, Montréal, QC  
Honour Rolls (maintained an average above 85% throughout the semesters)

## RELEVANT EXPERIENCE

### Research Associate

Feb. 2021 – present

University of Waterloo, Waterloo, ON, Canada

- Redesigns parts using Design for Additive Manufacturing principles
- Directs and supervises the writing of scientific articles
- Generates new geometrical modeling tools

### Research Assistant

Oct. 2020 – Feb. 2021

University of Waterloo, Waterloo, ON, Canada

- Redesigns parts using Design for Additive Manufacturing principles
- Directs and supervises the writing of scientific articles
- Generates new geometrical modeling tools

### Engineering Intern

May 2017 – Dec. 2017

Pratt&Whitney Canada, Longueuil, Qc, Canada

The aerospace industry's interest has grown in the recent years, and as an intern at Pratt&Whitney Canada, I had to help facilitate the adoption of this technology in the company. I have done so by

- Co-organizing workshops where designers and supply chain employees met to look for redesign opportunities
- Generating resources regarding suppliers of 3D printing equipment/training
- Leading meetings and supervising a team of designers
- Following up and ensuring the completion of design projects

### Research Intern

May 2015 – Aug. 2015

Additive Design and Manufacturing Lab, McGill University, Montreal, Qc, Canada

The summer undergraduate research in engineering (SURE) program at McGill funded my academic internship. The research revolved around software development for the design of 3D printed cellular structures as well as the release of the INTRALATTICE plug-in. During the summer, I have:

- Implemented algorithms for lattice structure manipulation
- Evaluated the manufacturability of my designed structures
- Built a working 3D printer (as a personal side project to familiarize myself with the technology)
- Collaborated with my teammates to integrate our components on a common platform
- Presented my work in the form of a poster to a broad audience

### Research Intern

May 2014 – Aug. 2014

McGill University, Montreal, QC, Canada

- Assisted technicians in the manufacturing of samples for tensile tests for the design of a biodegradable cardiovascular stent
- Realized tensile tests
- Analyzed the mechanical properties of the different tests
- Presented my work in the form of a poster to a broad audience

## VOLUNTEERING/EXTRA-CURRICULAR ACTIVITIES

### VP External

June 2015 – May 2018

McGill Additive Manufacturing Students' Society, McGill University, Montreal, QC, Canada

- Searched for new sponsorship opportunities
- Organized interdisciplinary seminars in which guest speakers from the industry and academia came to spread awareness on the benefits and opportunities linked to 3D printing
- Collaborated with other associations to co-host events
- Coordinated events' logistics (space rental bookings, promotion through social networks and announcements, etc...)
- Co-supervised design competitions and we were awarded "best engineering team" by the engineering undergraduate society

### Committee Member of the African Development Convention

Nov. 2016 – Feb. 2017

McGill African Students' Society, McGill University, Montreal, QC, Canada

- Developed my theme which I named "Revitalizing indigenous knowledge" in the hope of bringing awareness on the innovations throughout the African Continent
- Researched potential speakers (scholars) by investigating my panel's theme
- Collaborated with my teammates to coordinate the logistics (space rental bookings, promotion through social networks and announcements, etc...)
- Hosted the panelists
- Moderated the panel

## Member

Sept. 2013 – May 2015

McGill Robotics, McGill University, Montreal, Qc.

- Planned new robots features in weekly meetings
- Searched for new sponsorship opportunities

## SKILLS

**Software:** AutoCAD Inventor(basic), Solid Edge, Solid Works, Photoshop, Rhino 3D, Grasshopper 3D, Blender

**Programming languages:** C#, C++, Fortran (basic), Java, Python, Matlab, CSS, HTML

**Microsoft Office:** Word, Excel, PowerPoint

**Languages:** Fluent French, Fluent English, Spanish (basic)

## HONOURS AND AWARDS

Name	Amount	Year
Second Runner up for the Rapid+TcT poster challenge	250\$ (USD)	2019
Graduate Research Studentships	7500\$/Semester	2018
UW Grad Scholarship	1000\$	2018
Finalist of the CanadaMakes 3D Challenge	1000\$	2018
MIAE funding for the trip to the International Paris Air Show	NA	2017
MIAE funding for the international summer school of Beihang University, Beijing, China	2000\$	2016
NSERC Undergraduate Summer Research Award	5625\$	2014
Recipient of the Jackie Robinson scholarship Award (for the contribution to the work done within the community)	1000\$	2013

## CONTRIBUTIONS AND STATEMENTS

### *Published contributions*

Nsiempba, K.M.; Wang, M.; Vlasea, M. Geometrical Degrees of Freedom for Cellular Structures Generation: A New Classification Paradigm. *Appl. Sci.* **2021**, *11*, 3845. <https://doi.org/10.3390/app11093845>

### *Other contributions (not published)*

Nsiempba K., Toyserkani E. (2019) Predicting Defects of 3D Printed Lattice Structures: *Holistic Innovation in Additive Manufacturing Conference, 2019 edition* (MASc work – Poster Presentation)

Nsiempba, K., Toyserkani, E. (2019) Predicting Defects of 3D Printed Lattice Structures: *Holistic Innovation in Additive Manufacturing Conference, 2019 edition* (MASc work – Oral Presentation)

Nsiempba, K., Toyserkani, E. (2019) Predicting Defects of 3D Printed Lattice Structures: *2019 RAPID + TCT Conference* (MASc work – International – Poster presentation)