KEN M. NSIEMPBA

I use code to render shapes and
I use shapes to visualize data

CONTACT

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Botengu

Ken Nsiempba

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SKILLS

Python

C#

C++

Java

R

Matlab

HTML

CSS

Microsoft Office

Solidworks

Rhino3D

Blender

Autodesk Inventor

Grasshopper3D

WORK EXPERIENCE

Data engineer and scientist — **May '22 - Present**
Sunnetgroup Canada, Montreal, Quebec, Canada

- I use innovative methods to automatically extract data from scanned PDF documents
- I extract patterns and trends using this data
- I use tools like PowerBI and python libraries to visualize trends

Computational Designer — **Sep '21 - Apr '22**
Podform3D, Montreal, Quebec, Canada

- Modeled medical orthotics parametrically using Rhino3D and Grasshopper3D
- Developed an end-to-end design algorithm to go from a scanned patient's foot, as a point-cloud, to a finished medical orthotic represented by an extruded parametric surface
- Used **machine learning** tools such as **principal component analysis** to smartly reorient the scans of patients' feet
- Integrated features required by customers on a frequent basis

Research Associate — **Feb '21 - Feb '22**
University of Waterloo, Waterloo, Ontario, Canada

- Reduced the weight of a golf club by implementing topological optimization and latticing
- Created a design of experiment to study the manufacturability of metal samples as a function of geometrical parameters
- **Developed statistical models** to predict the manufacturability of 3d printed parts partly by **plotting and visualizing** surface roughness as a function of a sample's thickness and overhanging angle
- Directed and supervised the writing of scientific articles
- Oversaw the 3D printing of items and assisted the technicians in post-manufacturing processes

Engineering Intern — **May '17 - Dec '17**
Pratt & Whitney Canada, Longueuil, Quebec, Canada

- Generated resources to classify data about suppliers of 3D printing equipment/training to help employees better navigate the 3D printing industry
- Led meetings and supervised a team of designers to redesign parts for 3D printing
- Followed up on and ensured the completion of the redesigning process

CERTIFICATIONS

The Data Scientist's Toolbox

2022
Johns Hopkins University

R Programming

2022
Johns Hopkins University

Finance & Quantitative Modeling for Analysts Specialization

2022
University of Pennsylvania

ACHIEVEMENTS

Rapid+TcT Conference

2019
I was the second runner up for the poster challenge, winning a 250$ (USD) price in 2019

CanadaMakes3D Challenge

2018
I was a finalist of the Canada Makes 3D challenge

EDUCATION

MASc - Mechanical & Mechatronics Engineering — **Sep '18- Oct '20**
University of Waterloo - Waterloo, Ontario, Canada

Thesis' title: Coupled Experimentally-Driven Constraint Functions and Topology Optimization utilized in Design for Additive Manufacturing

Bachelor - Mechanical Engineering — **Sep '13 - May '18**
McGill University - Montreal, Quebec, Canada

I specialized in computational/parametric design of mechanical parts and 3D printing

PUBLICATIONS

Geometrical Degrees of Freedom for Cellular Structures Generation: A New Classification Paradigm — **Apr '21**
Appl. Sci. 2021, 11, 3845
https://www.mdpi.com/2076-3417/11/9/3845

Status: Accepted and Published

PROJECTS

My personal website — **Sep '20**
Tool: Python, HTML, CSS, Ruby, JavaScript, Markdown

I developed a website using GitHub Pages to display my projects. The projects I have done have helped me reinforce my knowledge of python, and python libraries such as **matplotlib, numpy, math, scipy, skimage, visvis, sklearn, Tensorflow, scikit, yahoo finance, bqplot**.

My 3D printer — **May '15**
Tool: Reprap kit

During my research internship, I was eager to learn about 3D printing technologies. I ordered the parts of a reprap printer (Prusa i3) and built it from scratch.