# Auguste Lehuger

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## Education

**École Polytechnique**                                                                   *2016-2019*
**One of France's top-ranking schools for science and engineering**
Third year student specializing in a MSc in Machine Learning and Computer Vision.
*Introduction to Machine Learning concepts, Image Analysis, Shape Representations and Advanced Algorithms*

Two years of Fundamental Mathematics: *Statistics, Probability, Complex Analysis, Differential Calculus…*
while having an openness on multidisciplinarity: *Economy, Molecular Biology, French Cinema, Engraving…*

**Paris Sciences & Lettres (PSL),**                                                       *2014-2016*
**Best ranked University in France according to Times Higher Education.**
Bachelor of Sciences, specialty in Mathematics, awarded with highest honours. (2nd/162)

## Academic Projects

**Predict missing links in research papers citation networks,** Kaggle Project *(Python)*
Our goal is to accurately reconstruct the initial network using graph-theoretical and textual features.
• Graph representation to extract information: Degree centrality, Jaccard similarity…
• Natural Language Processing: Semantic distances based on TF-IDF vectorisation of abstracts

**Pose Convolutional Machine & Stereo Vision,** Virtual Reality game *(C++ & Python)*
Our aim is to detect body motion with two cameras to represent a 3D video movement.
• Training of a *Convolutional Neural net* to recognize different parts of a body.
• Stereo Vision initialization and 3D reconstruction with *OpenCV* library, Video editing with MatPlotLib.

**Harmonic Coordinates for Character Articulation**, digital representation project *(Java)*
Based on a Pixar paper, our objective is to create a user interface to model movements for animation films.
• Creation of 3D meshes objects; Scan Conversion to transform continuous object in voxels (3D pixels)
• Solving Laplace's equation to compute the character's coordinates after each deformation of the cage.

## Internship experiences

**EOS Imaging**, Medical Device Company, Montreal (Canada)                 *April – Sept 2019*

ML Research Intern: *Design of CNN extracting key points from radio to build skeleton's 3D reconstruction.*

**Ippon Technologies USA**, Web Solution Consultancy, Richmond (Virginia)      *June – Sept 2018*

Junior Developer: *Development of an Alexa App & a Website for Allianz Travel Products.*

• Development of a microservice architecture with Angular & Spring technologies.
• Cloud hosting through DevOps tools like Jenkins and Amazon Web Service to interconnect an Alexa App.

**Passerelles Numériques Cambodia,** Education NGO**,** Phnom Penh            *Oct 2016 – April 2017*

Math & Logic Trainer: *Draft of the new 'Math for Web Programming' curriculum.*

Teaching the curriculum to two classes of 25 young adults and draft of the math entrance exams.

## Skills

• Programming: Python, Java, C++, C, Javascript, MATLAB
• Frameworks: Angular, Spring, TensorFlow // Libraries: Scikit-learn, OpenCV
• Languages: French (native), English (Debating Club, TOEFL 103), Spanish

## Outside activities

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| **Volleyball** | Training 6 hours a week and competing at the university championship. |
| **Architecture** | Currently leading the construction of a 300 m² pavilion for Vertical Farming. |
| **Columnist** | Regular writer for *La Gazelle* ~ 'Banking on Cryptocurrencies'. |
| **Oenology** | Cellar Master of the school, participating in nationwide competitions. |