





# Robin Roussel

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## EXPERIENCE

### **Adobe Research, USA** 6 - 9/2019

Research Intern

- Topic: "Generative modeling of chain reaction contraptions".
- Experimented with deep learning methods to generate shape assemblies, in Python 3 (Pytorch).

### **Dassault Systèmes Corporate Research, France** 4 - 9/2015

Research Intern

- Topic: "Data-driven structure-aware shape synthesis for the semantic reconstruction of indoor scenes from RGB-D data".
- Wrote an algorithm to generate new 3D models from an existing dataset, in C++ (Eigen, OpenCV, PCL).

### **University of St Andrews, UK** 6 - 9/2014

Research Intern

- Topic: "Shape reconstruction and body-dimension measurements of cetaceans from 3D sonar scanner data".
- Created a point cloud processing pipeline (registration, segmentation, mesh reconstruction), in MatLab & C++ (PCL).

### **CAOR Mines ParisTech, France** 9/2013 - 2/2014

Research Intern

- Topic: "Road marking detection and rendering from 3D lidar data acquired with a mobile mapping system".
- Implemented an image processing pipeline, in C++ (OpenCV).

## EDUCATION

### **University College London, UK** 10/2015 - 9/2020

PhD in Computer Science




- Thesis: "Crafting chaos: computational design of contraptions with complex behaviour".
- Advisors: Niloy J. Mitra, Marie-Paule Cani, Jean-Claude Léon.
- Teaching Assistant: "Introduction to Machine Learning" (3 yrs).

### **Mines ParisTech, France** 9/2012 - 9/2015

MSc in Executive Engineering

- Specialisation: Applied Mathematics & Computer Vision.

## PUBLICATIONS

- |  |   |
|--|---|
| <b>Robin Roussel</b> , Marie-Paule Cani, Jean-Claude Léon, Niloy J. Mitra<br>"Designing Chain Reaction Contraptions from Causal Graphs"<br>ACM Transactions on Graphics (Proc. SIGGRAPH '19; also selected for oral presentation at VIS '19) | 2019<br> |
| <b>Robin Roussel</b> , Marie-Paule Cani, Jean-Claude Léon, Niloy J. Mitra<br>"Exploratory design of mechanical devices with motion constraints"<br>Computers & Graphics  | 2018<br> |
| <b>Robin Roussel</b> , Marie-Paule Cani, Jean-Claude Léon, Niloy J. Mitra<br>"Spirou: constrained exploration for mechanical motion design"<br>ACM Symposium on Computational Fabrication (SCF '17)  | 2017<br> |

## SKILLS

### PROGRAMMING

**Python 3** (advanced)

- Jupyter, Num/Scipy, Pytorch, Sklearn

**JavaScript** (intermediate)

- Three.js

**C++** (prior experience)

- Bullet Physics, OpenCV, PCL

Other: Bash, LaTeX, HTML, CSS

### SOFTWARE

Docker, Git, Vim

Blender, FreeCAD, MeshLab

Linux, OS X, Windows

### DIGITAL FABRICATION

3D printing, Laser cutting

### LANGUAGES

**English** (TOEIC 975/990; TOEFL 115/120)

**French** (native)

Italian, Japanese, Mandarin (basic)

## COMMUNITY SERVICE

### **Tertiary reviewer**

CAD and Applications 2019

SIGGRAPH Asia 2018

Eurographics 2017

### **President of the LGBT+ Society**

Mines ParisTech 2014

### **President of the Film Society**

Mines ParisTech 2013