

Nicolas Douillet

PhD engineer

3D reconstruction, geometry

Image processing, data analysis

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NicolasDouillet



[Recommendations](#)



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PRO & IT SKILLS

Image processing

Data analysis

3D reconstruction

Optimization

Photogrammetry

Simulation, modelling

C++/algorithm

Matlab

Python

Meshlab

Maple

MicMac

Latex

WORK EXPERIENCE

2020

Mathworks : algebraic geometry. [Mesh processing](#) and [mesh generation toolboxes](#). > 200 downloads.

Night Guide (start-up smartphone app) : extern consulting for technological project management and methodology.

2019

Youdome, Monaco : R&D engineer, responsible for the software development. [Bodyscan, measures on 3D avatars](#).

2018

Nice regional education authority : math teacher. A level, science section. Lycée Carnot, Cannes.

2017

Mathworks : development for the file exchange community. [> 60 contributions with doc](#) and > 3k downloads.

Sculpteo : design, programming, and mesh of 3D printable mathematical surfaces : [3D printing project](#).

2013 - 2016

INRIA : R&D engineer

Galaad team : [surface fitting with NURBS](#) (3D reconstruction, splines). Development of a high precision technique for the fitting function. C++, Eigen and sdk libraries. European project Terrific. Collaborations : Missler software / Topsolid.

Titane team : [surface reconstruction with mesh](#). Optimization and integration of a high precision meshing technique (scale space meshing). Photogrammetry. C++, CGAL, Qt, Intell TBB libraries. European project Culture 3D Cloud. Collaborations : Geometry factory, CNRS Map, IGN, Telecom Sud Paris.

2012 - 2013

Cours Nicholas : self entrepreneurship : private tutoring in mathematics and physics.

2007 - 2011

CNRS-OCA : [PhD. Simulation and data analysis for the space interferometer LISA](#). Modeling, inverse problem, parameter estimation, non convex optimization, signal and image processing. Award : best [PhD poster](#). ESAIP Grasse engineer school physics teacher, 90h.

2006

CREATIS-LRMN (INSA-Lyon) : Msc project : [echocardiographic images segmentation](#). Level sets / snake curves. Collaboration : CHU Bordeaux. Summer school math teacher, 40h.

2005

CREATIS-LRMN (INSA-Lyon) : engineer project. [Dynamic imaging and tracking markers on videos](#) for the study of tyre physics. Collaboration and practical application : Michelin.

EDUCATION

2006 - 2007

INSA-Lyon : master of science. Image processing. Movement detection, tomography, inverse problem.

2002 - 2006

CPE Lyon : engineer in image and signal processing/computer vision, optimization, programming, algorithm.

2000 - 2002

College prep in superior mathematics (Math-Sup / Spé) : two years full-time higher education in science, in preparation for competitive entry to 'grandes écoles' (french high-level schools of science).

LANGUAGES

French

Native speaker.

English

Fluent. FCE (First Certificate of Cambridge University)

German

Working knowledge.

OPERATIONAL SKILLS

- Design and implementation of mathematical and technical algorithms.
- Research, prototyping.
- Data analysis, parameter estimation, inverse problem.
- 3D reconstruction, geometry, photogrammetry (point clouds and meshes).
- Modelling, simulation, digital computation.
- Technical reporting, scientific communication and diffusion.

INTERESTS & PERSONAL RESEARCH PROJECTS

- 3D mesh reconstruction from convex hull 'divide and conquer' algorithm.
- 3D printable iterative meshed fractal objects. [Fractal gallery](#). [3D printing shop](#).
- Geometric arithmetics (prime numbers set visualization, [conjecture on twin primes](#)).
- Autostereograms creation.

EXTRA CURRICULAR ACTIVITIES & INTERESTS

Teaching

Personal mathematics and physics teacher for high school and post baccalaureate pupils in science courses. Eight years experience with results and recommendations (2004-2013).

Scientific
Diffusion

SACA (Société Astrophysique de Cannes). [Conferences on gravitational wave detection](#) (2009-2010) [gif animation creation for Wikipedia](#). INRIA MASTIC.

Sports &
Leisure

Reading, rock climbing (20y), slacklining (6y), game of Go (10y).
Others : knowledge in aeronautics (PPL license holder). Mensa society member.