



# PAUL BAKSIC

Ph. D. - Medical robotics

## CONTACT

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in paul-baksic-235162107

## SKILLS

Robotics 5+ yrs

Programming 5+ yrs

Control theory 4+ yrs

Numerical simulation 3+ yrs

Teaching 3+ yrs

C++ 5+ yrs

Matlab 5+ yrs

Python 3+ yrs

Linux 3+ yrs

CMake 3+ yrs

## LANGUAGES

French M.T.

English C1-C2

## EDUCATION

**Ph. D. - Medical robotics** 2018 - 2022  
Université de Strasbourg - Strasbourg, (France)

Simulation-based robotic control for interventional radiology assistance.

**M.S. - Robotics, Imaging & Computer Science** 2016 - 2018  
Université de Strasbourg - Strasbourg, (France)

Passed with honour (**15.2/20**). Thesis work on Computer Vision.

**Engineer degree - Robotics & Computer Science** 2015 - 2018  
Télécom Physique Strasbourg - Strasbourg, (France)

Passed with honour (**15.15/20**). Specialised in robotics and control theory.

**Preparatory Class For The Grandes Ecoles** 2013 - 2015  
Lycée Kléber - Strasbourg, (France)

Equivalent to a Bachelor degree in Mathematics and Physics with an option in Computer Theory.

## WORK EXPERIENCE

**Research Engineer** Sept. 22 - Now  
CNRS (France)

Development of an experimental setup in the field of robotic needle insertion. Implementation of vision, control, and simulation algorithms.

**Research Engineer** June 22 - Sept. 22  
Université de Strasbourg, Strasbourg (France)

Worked on maintaining research team's code in the field of numerical simulation. It consisted in maintaining old code and merging it into newly developed framework.

**Ph.D. Student** Oct. 18 - June 22  
Université de Strasbourg, Strasbourg (France)

Worked as a Ph.D. student in the ICube lab inside the AVR (currently RDH) team. Lead my research project on robotic assistance to interventional radiology. Through this job I gained skills in research, writing, programming (C++), supervising and communicating.

**Graduate Teaching Assistants** Oct. 19 - June 21  
Université de Strasbourg, Strasbourg (France)

Supervised practical work in continuous and discrete control theory and in numerical optimization to master students.

# PERSONAL INTERESTS

## The Guitar

### Played for 7 years

Self-taught. Plays classical, folk and electric guitar.

## Reflex Photography

### Practiced for 5 years

Self-taught. Take portrait, landscape and macro photos.

## Beekeeping

### Practiced for 5 years

Self-taught. Took care of a maximum of 5 Dadant hives at the same time.

## Squash

### Practiced for 2 years

Played with colleagues and friends at an amateur level.

## Video Games

### Computer, PS4 and Switch

Mostly RTS and RPG games.

## Research Engineer Intern IRCAD, Strasbourg (France)

Feb. 18 - July 18

Worked as a research engineer in the field of computer vision. Adapted calibration methods into the firm framework, tested automatic calibration method from the literature and developed an AR software using Orb-SLAM and optical flow for surgery.

## PUBLICATIONS

### Paul Baksic

#### Commande robotique basée simulation pour l'assistance à la radiologie interventionnelle

Robotique [cs.RO]. Université de Strasbourg, 2022. Français.

HAL : 03881361

### Paul Baksic, Hadrien Courtecuisse, Bernard Bayle

#### Shared control strategy for needle insertion into deformable tissue using inverse Finite Element simulation

ICRA 2021 - IEEE International Conference on Robotics and Automation, May 2021, Xi'an / Virtual, China.

DOI: 10.1109/ICRA48506.2021.9561013

### Pedro Henrique Suruagy Perrusi, Paul Baksic, Hadrien Courtecuisse

#### Interactive Finite Element model of needle insertion and laceration

Eurographics 2021 - The 42nd Annual Conference of the European Association for Computer Graphics, European Association for Computer Graphics, May 2021, Vienne / Virtual, Austria.

DOI: 10.2312/egs.20211020

### Pedro Henrique Suruagy Perrusi, Anna Cazzaniga, Paul Baksic, Eleonora Tagliabue, Elena de Momi, Hadrien Courtecuisse

#### Learning robotic needle steering from inverse finite element simulations

ICRA 2021 - Workshop on Representing and Manipulating Deformable Objects, May 2021, Xi'an / Virtual, China.

HAL: hal-03241674

### Paul Baksic, Hadrien Courtecuisse, Christian Duriez, Bernard Bayle

#### Robotic needle insertion in moving soft tissues using constraint-based inverse Finite Element simulation

ICRA 2020 - IEEE International Conference on Robotics and Automation, May 2020, Paris / Virtual, France. pp.2407-2413.

DOI: 10.1109/ICRA40945.2020.9197515

### Paul Baksic, Hadrien Courtecuisse, Matthieu Chabanas, Bernard Bayle

#### FEM-based confidence assessment of non-rigid registration

Surgetica 2019, 2019, Rennes, France.

HAL: hal-02238974