LOÏC MOSSER

Post-doctoral researcher

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DIPLOMA

Doctoral degree: Contribution to the design and manufacture of pneumatic soft robots
University of Strasbourg
Sept 2020 – June 2024

Master's degree : Imaging, Robotics and Engineering for the Living (IRIV) Medical and Surgical Imaging and Robotics pathway
Télécom Physique Strasbourg
Sept 2019 – Juillet 2020

Successful completion of France's highest teacher recruitment exam (Agrégation) in industrial science with industrial computing option (ranked 5th nationally)
École Normale Supérieure of Rennes
Sept 2018 – Juillet 2019

Master's degree : Sciences, Technology and Health (STS) specializing in complex systems engineering
École Normale Supérieure of Rennes
Sept 2017 – Juillet 2019

Double bachelor's degree in engineering science and electronics
École Normale Supérieure of Rennes
Sept 2016 – Juillet 2017

Baccalauréat with Engineering Sciences option
Lycée Julie Daubié, Rombas
Sept 2014 – Juillet 2016

RESEARCH INTEREST

Soft robotics | Mechatronics | Robotics | Learning-based model | Generative design method

LANGUAGES

English ●●●●●

COMPUTER SKILLS

- Solidworks
- CREO
- Matlab
- Comsol
- Python
- ROS2
- Keras/Tensorflow
- C / C++
- VHDL
- UML

TEACHING EXPERIENCE (217.5 HOURS)

- Industrial computing (Master 2)
- Mecatronics project (Master 1)
- Design for additive manufacturing (Master 1)
- Robotics project (Master 1)
- Mechanical design (Bachelor year 3)
- Manufacturing process (Bachelor year 3)

REFERRERS

Prof. Pierre Renaud
@ pierre.renaud@insa-strasbourg.fr

Prof. Sylvain Lecler
@ sylvain.lecler@insa-strasbourg.fr

Prof. Christian Duriez
@ christian.duriez@inria.fr

EXPERIENCE

Postdoctoral Researcher

IHU Strasbourg - ICube - RDH and IPP Teams

September 2024 – October 2025 Strasbourg, France

- Project: This research contract is part of the LABCOM Lasersurf project involving the ICube laboratory and IREPA Laser.
- Objective: Supervision of femtosecond laser texturing process. Laser Surface Texturing (LST) is complex to implement on large, non-planar surfaces. LST supervision is one of the issues to which LABCOM Lasersurf is trying to provide a technical and scientific response.
- Labcom Link

Design engineer

IHU Strasbourg - ICube - RDH Team

September 2023 – August 2024 Strasbourg, France

- Objective:
  - Enhancing the value of supervised additive manufacturing of silicone.
  - Distribution of production tools to the ICBMS and LS2N laboratories.
  - Publication of the supervision method.
- Link to the ANR funded RAMSAI ProjectANR RAMSAI Link

PHD Student

IHU Strasbourg - ICube - RDH Team

September 2020 – August 2023 Strasbourg, France

- Design objective: propose a soft robot design method for continuous, ramified and variable cross-section pneumatic networks.
- Manufacturing objective: to propose a method of supervised additive manufacturing of silicone without support material to produce soft robots.
- Results: creation of a genetic algorithm accelerated by a deep learning model manipulating a representation of soft robots based on Bézier curves and Gaussian control points. Creation of an instrumented silicone additive manufacturing platform enabling laser profilometry supervision of the part produced via layer-by-layer point clouds. Creation of a strategy for processing these point clouds to extract indicators on the “health” of the part during production, in order to detect situations such as collapse, non-compliance with dimensions, pipe obstruction or destruction.

COMMUNICATION

International peer-reviewed journal :

- L. Mosser, L. Barbé, L. Rubbert, and P. Renaud, “Towards Automatic Design of Soft Pneumatic Actuators: Inner Structure Design Using CNN Model and Bézier Curve-Based Genetic Algorithm,” IEEE Robot. Autom. Lett., vol. 8, no. 10, pp. 6603–6610, Oct. 2023, doi: 10.1109/LRA.2023.3309135. (presented at ICRA 2024)
- L. Mosser, L. Barbé, L. Rubbert, and P. Renaud, "Instrumentation of silicone additive manufacturing by extrusion: introduction and evaluation of laser profilometry and associated indicators for supervision", Additive Manufacturing, 2025. doi : 10.1016/j.addma.2025.104779

National peer-reviewed conference :

- L. Mosser, L. Barbé, L. Rubbert, and P. Renaud, “Using deep learning models to accelerate the design of soft robots with genetic algorithms”, Upper Rhine Artificial Intelligence Symposium 2023.

National non-refereed conference :

- L. Mosser, L. Barbé, L. Rubbert, and P. Renaud, “ROS2 for soft materials additive manufacturing” ROSConFr 2023.
- L. Mosser, L. Barbé, L. Rubbert, and P. Renaud, “AI-accelerated genetic algorithm with Bézier curve-based genotype for soft robot design”, Journée des jeunes chercheurs en robotique 2022.