

Dr. Mayank Shekhar JHA

Associate Professor (Maitre de Conférences)

Lab : [Centre de Recherche en Automatique de Nancy \(CRAN\) UMR CNRS 7039](#),
Engineering School : [École Polytechnique de l'Université de Lorraine \(Polytech Nancy\)](#)
University of Lorraine,
Vandœuvre-lès-Nancy Cedex, 54509 France
Date of birth : 11/09/1989
Nationality: India
Tel: +33-(0)-660673251,
E-mail: mayank-shekhar.jha@univ-lorraine.fr,
[Personal Website](http://w3.cran.univ-lorraine.fr/mayank-shekhar.jha/) : <http://w3.cran.univ-lorraine.fr/mayank-shekhar.jha/>
ORCID: <https://orcid.org/0000-0002-6926-1386>

Research Activities:

Ph.D. Co-Supervision

Satya Marthi CHAVAN (2024-2027), *Design of a safe operation control system using reinforcement learning - Application to autonomous mobile systems*, Funding: ANR (French National Research Agency), [Link](#).
Theo RUTCSHK (2023-2026), *Physics Informed Neural Networks based System Identification for Efficient Reinforcement Learning*, Finance: [CRAN](#).
Soha KANSO (2021-2024), *Contributions to Safe Reinforcement Learning for safety Critical Systems*, Finance: [CRAN](#).
Martin HERVE DE BEAULIEU (2020-2023), *Identification and prognosis of state of health of non-linear systems through deep learning. Application to predictive maintenance of business aircraft* in collaboration with Dassault Aviation.

Post-Doctoral Co-supervision

Dr. Julien Thuillier, *Health Aware Control Design of Liquid Propulsion Rocket Engine* in collaboration with Centre National d'Etudes Spatiale CNES. [The National Centre for Space Studies](#)

Industrial / International / National Collaborative projects:

2020-2023: Scientific co-leader with Prof. Hugues Garnier of a 3-year research collaboration between CRAN and Dassault Aviation starting in 2020 (Fund secured: 240,000 Euro).
2020-2023: Scientific co-leader of three research contracts between CRAN and CNES Lanceurs (The National Centre of Space Studies France). Total Funding secured: 150,000 Euros.
2023-2025: Scientific Leader, Research contract between CRAN and CNES.
Project titled: Health Aware Control System Design based on Machine learning for reusable Cryogenic Liquid Rocket Engines. total Funding secured: 100,000 Euros.
2023-2027: French National Research Agency (ANR) funded project, *Adaptive and resilient self-organization of heterogeneous robot fleets by collective emergence for a mission" (SOS)*,
Head the working package: "Scientific dissemination" and participation"
Participant: Ph.D. Thesis work on the theme of reinforcement learning for land and air robots, in collaboration with the University of Lille and Lynxdron. Funding: 360,000 Euros Total funding CRAN.

Top 5 Journal Publications relevant to the project:

Jha, M. S., & Kiumarsi, B. (2025). Off-policy safe reinforcement learning for nonlinear discrete-time systems. *Neurocomputing*, 611, 128677.
De Beaulieu, M. H., Jha, M. S., Garnier, H., & Cerbah, F. (2024). Remaining Useful Life prediction based on physics-informed data augmentation. *Reliability Engineering & System Safety*, 252, 110451.
Kanso, S., Jha, M. S., & Theilliol, D. (2024). Off-policy model-based end-to-end safe reinforcement learning. *International Journal of Robust and Nonlinear Control*, 34(4), 2806-2831.
Jha, M. S., Theilliol, D., & Weber, P. (2023). Model-free optimal tracking over finite horizon using adaptive dynamic programming. *Optimal Control Applications and Methods*, 44(6), 3114-3138.
Thuillier, J., Jha, M. S., Le Martelot, S., & Theilliol, D. (2024). Prognostics aware control design for extended remaining useful life: Application to liquid propellant reusable rocket engine. *International Journal of Prognostics and Health Management*, 15(1).

Organizational activities:

Co-Leader of French National Level Working group (GDR MACs Action) on the theme: *Health Aware Control Design in Dynamic Systems* (see [here](#) and [here](#))
Co-Organizer of *Health Aware Control Design in Aerospace Domain Seminar, Polytech Nancy with CNES, France, 17th November 2022*.
IPC Chair, [16th European Workshop on Advanced Control and Diagnosis \(ACD 2022\)](#), Nancy, France.
Associate Editor for [28th Mediterranean Conference on Control and Automation \(MED'2020\)](#)
Workshop and Tutorials Chair for [28th Mediterranean Conference on Control and Automation \(MED'2020\)](#)
Publicity chair for 5th International Conference on Control and Fault-Tolerant Systems (SySTOL), 2021.



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■ Polytech Nancy
2 rue Jean Lamour F-54519
Vandœuvre-lès-Nancy Cedex
France
Tél +33 (0)372 746 900
Fax +33 (0)372 746 901