

Epiphane LOKO

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🌐 <https://lokoepiphane.github.io/>

Current Position

Since Dec. 2025 📌 **Postdoctoral Researcher**, GIPSA-lab, **Université Grenoble Alpes** (France). Research project: *Machine Learning Concepts for the Control of Partial Differential Equations (PDEs)*, under the supervision of **Christophe Prieur** and **Thomas Meurer**. Funded by the 2025 AAP IDEX-RI Program of **Université Grenoble Alpes** and the Strategic Fund of **Karlsruhe Institute of Technology**.




Education

- 09/2022 – 11/2025 📌 **Ph.D. in Applied Mathematics**, **École nationale des ponts et chaussées – Institut Polytechnique de Paris** (France). *Stability Analysis of Infinite-Dimensional Systems and the Effects of Disturbances: Theory and Applications*. Supervised by **Amaury Hayat** and **Antoine Chaillet**.
- 09/2021 – 08/2022 📌 **M.Sc. in Applied Mathematics**, **Université Gustave Eiffel** (France). *Analysis of Partial Differential Equations*. Recipient of the LabEx Bézout Excellence Scholarship.
- 09/2019 – 08/2021 📌 **M.Sc. in Pure Mathematics**, **Institut de Mathématiques et de Sciences Physiques (IMSP)** (Benin). Ranked first in the M.Sc. Year 1 cohort. M.Sc. Year 2 funded by the African Center of Excellence in Mathematical, Computer and Applied Sciences.
- 09/2018 – 08/2019 📌 **B.Sc. in Mathematics**, **Institut de Mathématiques et de Sciences Physiques (IMSP)** (Benin).
- 09/2016 – 08/2018 📌 **Preparatory Classes in Mathematics and Physics (MPSI)**, Institut de Mathématiques et de Sciences Physiques (IMSP) (Benin).









Research Visits and Academic Internships

- 06/2025 📌 **Visiting Ph.D. Researcher**, School of Mathematical Sciences, Peking University (China). Topic: *F-equivalence for Partial Differential Equations*, under the supervision of **Shengquan Xiang**. Duration: 1 week.
- 10/2024 – 12/2024 📌 **Visiting Ph.D. Researcher**, National Technical University of Athens (Greece). Topic: *Stabilization of Chemostat Models*, under the supervision of **Iasson Karafyllis**.
- 04/2022 – 08/2022 📌 **Research Intern**, Laboratoire des Signaux et Systèmes (L2S), CentraleSupélec (France). Topic: *Input-to-State Stability of Time-Delay Systems*, under the supervision of **Antoine Chaillet**.
- 04/2021 – 08/2021 📌 **Research Intern**, Institut de Mathématiques et de Sciences Physiques (IMSP) (Benin). Topic: *Stabilization of One-Dimensional Hyperbolic Systems*, under the supervision of **Amaury Hayat** (remote supervision).





Awards and Scholarships

- 2024  **Best Presentation Award**, Control and Systems Group, Laboratoire des Signaux et Systèmes (L2S), awarded at the 2024 Ph.D. Students' Day.
- 2021–2022  **LabEx Bézout Excellence Scholarship** for the M.Sc. in Applied Mathematics.
- 2020–2021  **Full Master's Scholarship**, African Center of Excellence in Mathematical, Computer and Applied Sciences CEA-SMIA.






Editorial and Peer-Review Activities

- Automatica  Reviewer for 10 manuscripts.
- IEEE Control Systems Letters and CDC  Reviewer for 6 manuscripts.
- Systems & Control Letters  Reviewer for 3 manuscripts.
- IEEE Transactions on Automatic Control  Reviewer for 2 manuscripts.
- SIAM Journal on Control and Optimization  Reviewer for 2 manuscripts.
- Communications in Contemporary Mathematics  Reviewer for 2 manuscripts.
- IFAC Conferences (SSSC, TDS and COSY)  Reviewer for 2 manuscripts.
- Systems & Control: Foundations & Applications  Reviewer for 1 book chapter.





Academic and administrative responsibilities

- 09/2025  **Jury Member**, 2025 Ph.D. Students' Day, Laboratoire des Signaux et Systèmes (L2S). Evaluated five presentations in the Automatic and Systems session.
- 01/2025–08/2025  **Ph.D. Student Representative**, Teaching and Research Council (CER), **Ecole nationale des ponts et chaussées**.
- 06/2025–07/2025  **Volunteer**, Joint IFAC Conference on SSSC–TDS–COSY 2025 (Gif-sur-Yvette, France).
- 11/2024–07/2025  **Co-organizer of an Invited Session**, IFAC Conference on SSSC–TDS–COSY (France).







Teaching Experience

- Sep. 2024 – Jan. 2025  Course on *Analysis and Partial Differential Equations*, 1st-year Engineering program (30h).
- Apr. 2024  Lecture on *Sobolev Spaces and Distribution Theory*, 2nd-year IMI program (4h).
- Sep. 2023 – Jan. 2024  Course on *Analysis and Partial Differential Equations*, 1st-year Engineering program (25h).
- Jan. 2023  Tutorials in Control Theory, 2nd-year IMI program (3h).
- Dec. 2022  Course on *Analysis and Scientific Computing / Fourier Transforms*, 1st-year program (3h).





Talks in international conferences

- 06/2025  **5th IFAC–IEEE–CSS Workshop on control of partial differential equations (CPDE)**
Rapid stabilization of general linear PDEs via F -equivalence. Beijing, China.
-  **12th SMAI Biennial Conference**
Stabilization of chemostats with mortality and substrate dynamics. Carcans, France.
- 12/2024  **IEEE Conference on Decision and Control (CDC)**
Growth Conditions to ensure input-to-state stability of time-Delay systems with pointwise dissipation. Milan, Italy.
- 05/2024  **National Congress on Numerical Analysis (CANUM)**
Growth conditions to ensure input-to-state stability of time-Delay systems with pointwise dissipation. Île de Ré, France.

Talks/Poster in internal seminars, Ph.D. student Day

- 02/2026  **Infinity Team Seminar**, GIPSA-lab, Grenoble. *Stabilization of finite-dimensional linear systems using neural network controllers.*
- 09/2024  **Ph.D. Students' Day**, Laboratoire des Signaux et Systèmes (L2S). *Growth conditions to ensure input-to-state stability of time-delay systems with pointwise dissipation.*
- 06/2024  **Ph.D. Seminar, L2S.** *Building of coercive Lyapunov–Krasovskii functionals based on Razumikhin and Halanay conditions.*
- 09/2023  **Ph.D. Students' Day, L2S. Poster:** *Getting LKF-wise dissipation to ensure input-to-state stability for time-delay systems.*
- 06/2023  **Ph.D. Seminar, L2S.** *Novel pointwise dissipation conditions for input-to-state stability of time-delay systems.*
- 04/2023  **Young Researchers Seminar**, CERMICS. *Input-to-State Stability of Time-Delay Systems: Lyapunov-Based Results.*

Talks as invited and visiting Ph.D. Researcher

- 08/2025  **Seminar, LAGEPP**, Lyon, France. *Input-to-state stability of time-delay systems with pointwise dissipation and F -equivalence for general linear PDEs: Applications.* Invited by **D. Astolfi** and **V. Andrieu**.
- 06/2025  **Seminar, Peking University**, Beijing, China. *Input-to-state stability of time-delay systems with pointwise dissipation and F -equivalence for general linear PDEs: Applications.* Invited by **S. Xiang**.
- 02/2025  **Ph.D. Seminar Series, UM5**, Rabat, Morocco. *Rapid Stabilization of general linear PDEs and input-to-state stability of time-delay systems under pointwise dissipation.* Online seminar. Invited by **I. Lamrhari**.
-  **Welcome Day Seminar, TODAI Delegation**, France. *Applications of stabilization: The chemostat models.* Invited by **A. Hayat**.

International Collaborations

Karlsruhe Institute of Technology (Germany)	📌 Thomas Meurer	(2 joint papers, including 1 in preparation)
University of L'Aquila (Italy)	📌 Pierdomenico Pepe	(1 joint paper)
National Technical University of Athens (Greece)	📌 Iasson Karafyllis	(3 joint papers; hosted for a 2 months research visit in Athens)
University of California, San Diego (USA)	📌 Miroslav Krstić	(1 joint paper)
Florida Atlantic University (USA)	📌 Yuan Wang	(1 joint paper)
Peking University (China)	📌 Shengquan Xiang	(hosted for a research visit in Beijing)

Ph.D. Thesis Committee

Referee 1	📌 Gengsheng Wang , Professor, Tianjin University (China).
Referee 2	📌 Fabian Wirth , Professor, University of Passau (Germany).
Examiner 1	📌 Iasson Karafyllis , Professor, National and Kapodistrian University of Athens (Greece).
Chair	📌 Jean-Michel Coron , Emeritus Professor, Sorbonne Université (France).
Examiner 2	📌 Delphine Bresch-Pietri , Associate Professor, Mines Paris–PSL (France).
Examiner 3	📌 Julie Valein , Associate Professor (HDR), Université de Lorraine (France).

Research Expertise and Scientific Interests

Dynamical Systems	📌 Nonlinear time-delay systems with perturbations, partial differential equations, and ordinary differential equations.
Functional Analysis	📌 Operator theory, semigroup theory, and Sobolev spaces.
Control Theory and Automatic Control	📌 Estimation, Lyapunov functionals, and stability analysis.
Applications	📌 Chemical reactors, biological systems, and chemostat models.
Computational Methods and AI	📌 Neural networks, approximation theory, and system identification.

Publications

Publications marked with a * indicate papers where I am the main contributor.

Peer-Reviewed Journal Articles (Accepted / Published)

- 1 *E. Loko and A. Hayat, "Rapid stabilization of general linear systems with F-equivalence," in *Journal of Functional Analysis*, 2025. [URL: https://www.sciencedirect.com/science/article/abs/pii/S0022123626001114](https://www.sciencedirect.com/science/article/abs/pii/S0022123626001114).
- 2 *E. Loko, A. Chaillet, and I. Karafyllis, "Building coercive Lyapunov–Krasovskii functionals based on Razumikhin and Halanay approaches," *International Journal of Robust and Nonlinear Control*, vol. 34, no. 10, pp. 6372–6392, 2024. [URL: https://onlinelibrary.wiley.com/doi/abs/10.1002/rnc.7229](https://onlinelibrary.wiley.com/doi/abs/10.1002/rnc.7229).

Peer-Reviewed Conference Papers (Accepted / Published)

- 1 *E. Loko, A. Chaillet, Y. Wang, I. Karafyllis, and P. Pepe, "Growth conditions to ensure input-to-state stability of time-delay systems under point-wise dissipation," in *2024 IEEE 63rd Conference on Decision and Control (CDC)*, IEEE, 2024. [URL: https://ieeexplore.ieee.org/abstract/document/10886321](https://ieeexplore.ieee.org/abstract/document/10886321).

Preprints and Submitted Papers Under Review

- 1 *E. Loko, T. Meurer, and C. Prieur, *Stabilization of linear finite-dimensional systems using continuous neural networks*. Preprint submitted to *2026 IEEE 65th Conference on Decision and Control (CDC)*. A current version of the manuscript is available on my webpage at the following link, 2026. [URL: https://lokoepiphane.github.io/](https://lokoepiphane.github.io/).
- 2 *E. Loko and A. Chaillet, *Converse Lyapunov result for exponential ISS of time-delay systems*. A current version of the manuscript is available on my webpage at the following link. 2025. [URL: https://lokoepiphane.github.io/](https://lokoepiphane.github.io/).
- 3 I. Karafyllis, E. Loko, M. Krstic, and A. Chaillet, *Global stabilization of chemostats with nonzero mortality and substrate dynamics*. Preprint submitted to *International Journal of Control*, 2025. [URL: https://arxiv.org/abs/2502.09310](https://arxiv.org/abs/2502.09310).

Ph.D. Thesis

- 1 *E. Loko, "Stability analysis of infinite dimensional systems and effect of perturbations: Theory and applications," *École nationale des ponts et chaussées*, 2025. [URL: https://theses.hal.science/tel-05503136/](https://theses.hal.science/tel-05503136/).

Manuscripts in Preparation

- 1 *E. Loko, T. Meurer, and C. Prieur, "Stabilization of linear systems using difference delay neural networks: Application to unstable parabolic PDEs," 2026.
- 2 *E. Loko and A. Hayat, "Stabilization of two-dimensional Schrodinger equation F-equivalence.," 2025.
- 3 *E. Loko, A. Hayat, and S. Xiang, "Stabilization of the non-linear water tank equation.," 2025.