Florent Koudohode

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Career and Education

Oct 2026 – Sept 2027
Postdoctoral fellow. L2S–CNRS, CentraleSupélec, Paris-Saclay
Project: State and parameter estimation of hyperbolic PDEs coupled with non-linear ODEs
Advisors: Lucas BRIVADIS, Jean AURIOL

Dec 2023 – Sept 2026
Postdoctoral fellow. Technical University of Crete, Chania, Greece
Project: ERC Consolidator Grant (ERC, C-NORA, 101088147)
Funded under the ERC Consolidator Grant Micro-Macro Secure Control of Infinite-Dimensional Transport Systems
Project principal coordinator: Nikolaos Bekiaris-Liberis

Oct 2020 – Oct 2023
Ph.D., Paul Sabatier University, LAAS-CNRS, Toulouse, France
Thesis title: *Event-based control of some PDEs.*
PhD advisors: Lucie Baudouin and Sophie Tarbouriech
Defense: October 26^{th}, 2023
Reviewers:
Julie Valein (Université de Lorraine, CNRS, Inria, IECL, Nancy, France)
Romain Postoyan (Université de Lorraine, CNRS, CRAN, Nancy, France)
Examiners:
Antoine Girard (L2S–CNRS, Gif-sur-Yvette, France),
Jean-Michel Coron (Professeur émérite, Sorbonne Université, Paris, France)
Frédéric Gouaisbaut (Maître de conférences, UPS, Toulouse, France)

May 2019 – Sept 2020
Master in Mathematics Research and Innovation, UPS, Toulouse, France.
Thesis title: *Event-based control for finite dimensional and infinite dimensional dynamical systems.*
Advisors: Lucie Baudouin and Sophie Tarbouriech

Feb 2019 – June 2020
Research Intern, IMT, University Paul Sabatier, Toulouse, France.
Advisors: Sylvain Ervedoza, Alexandre Serret, Swann Marx

Oct 2016 – Dec 2018
Research Master's degree in Mathematics and Applications, IMSP, Dangbo, Benin.
Thesis title: *Small-time global stabilization of the Korteweg-de Vries equation with three scalar controls.*
Advisors: Prof. Jean-Michel Coron and Prof. Marcos Aboubacar

Oct 2015 – Sept 2016
Bachelor of Mathematics and Computer Science, IMSP, Dangbo, Benin.
Thesis title: *Estimation of the size of a population.*
Advisor: Dr Freedath Djibril Moussa

2013 – 2015
Preparatory Classes, IMSP, Dangbo, Benin.

Skills

Research	Nonlinear control theory, Control of Partial differential Equations (PDEs), Time-delay systems, Switching systems, Event-based control, Quantization, Saturation, Lyapunov theory, LMI, Backstepping method, ISS, Observer design,
Coding and Web Dev	Matlab, Python, R, Julia, …Html, css, JavaScript,
Misc.	Academic research, teaching, amateur rugby (Cretan Gunners RFC).
Languages	French (native), English (strong working proficiency), Greek (basic knowledge)

Research Publications

Journal Articles

1. F. Koudohode, N. Espitia, J.-P. Humaloja, and N. Bekiaris-Liberis, "Output quantization compensation in event-triggered backstepping control of 2×2 hyperbolic systems," *Automatica*, 2026, Submitted.
2. F. Koudohode and N. Bekiaris-Liberis, "Semiglobal switched predictor-feedback stabilization of nonlinear systems with input delay and state/input quantization," *IEEE Transactions on Automatic Control, accepted*, 2025.
3. F. Koudohode and N. Bekiaris-Liberis, "Switched predictor feedbacks for pde and ode systems subject to state and input quantization," *IMA Journal of Mathematical Control and Information*, 2025. doi: 10.1093/imamci/dnaf044.
4. F. Koudohode and N. Bekiaris-Liberis, "Simultaneous compensation of input delay and state/input quantization for linear systems via switched predictor feedback," *Systems & Control Letters*, vol. 192, p. 105 912, 2024, issn: 0167-6911. doi: 10.1016/j.sysconle.2024.105912.
5. F. Koudohode, N. Espitia, and M. Krstic, "Event-triggered boundary control of an unstable reaction diffusion pde with input delay," *Systems & Control Letters*, vol. 186, p. 105 775, 2024, issn: 0167-6911. doi: 10.1016/j.sysconle.2024.105775.
6. F. Koudohode, L. Baudouin, and S. Tarbouriech, "Event-based control of a damped linear wave equation," *Automatica*, vol. 146, p. 110 627, 2022, issn: 0005-1098. doi: 10.1016/j.automatica.2022.110627.

Conference Proceedings

1. F. Koudohode, J.-P. Humaloja, N. Espitia, and N. Bekiaris-Liberis, "On compensation of the effect of output quantization in event-triggered backstepping control of 2×2 hyperbolic systems," in *IEEE Conference on Decision and Control*, Accepted, 2026.
2. F. Koudohode and N. Bekiaris-Liberis, "Predictor-feedback stabilization of globally lipschitz nonlinear systems with state/input quantization," in *Joint IFAC Conference SSSC-TDS-LPVS, Gif-sur-Yvette, France*, 2025. doi: 10.1016/j.ifacol.2025.10.007.
3. F. Koudohode and N. Bekiaris-Liberis, "Stabilization of an unstable reaction-diffusion pde with input delay despite state and input quantization," in *American Control Conference, Denver, CO, USA*, 2025, pp. 1119–1124. url: https://api.semanticscholar.org/CorpusID:275920743.
4. F. Koudohode and N. Bekiaris-Liberis, "Simultaneous compensation of input delay and state quantization for linear systems via switched predictor feedback," in *IEEE Conference on Decision and Control, Milan Convention Centre, Italy*, 2024. doi: 10.1109/CDC56724.2024.10886389.

5 F. Koudohode, L. Baudouin, and S. Tarbouriech, "Dynamic event-triggered stabilization for the schrödinger equation," in *Joint IFAC Conference SSSC-TDS-LPVS, Montreal, Canada*, vol. 55, 2022. DOI: 10.1016/j.ifacol.2022.11.318.

6 F. Koudohode, L. Baudouin, and S. Tarbouriech, "Event-based control of a damped linear schrödinger equation," in *European Control Conference (ECC), London, UK*, 2022. DOI: 10.23919/ECC55457.2022.9837965.

Communications

Invited speaker

2026 **AFCONS)**, *Compensation of Input Quantization in Event-Triggered Boundary Control of 2x2 Hyperbolic Systems*, La Canée, Mbour, Sénégal, 14 July.

2024 **TUC Departmental Seminar**, *Simultaneous Compensation of Input Delay and State Quantization for Linear Systems via Switched Predictor Feedback*, Chania, October 25.

2022 **CRIStAL, SHOC Team** , *Event-based control of a damped linear Schrödinger equation*, Lille, May 11.

CT OSYDI – Journées de la SAGIP, *Event-based control of a damped linear Schrödinger equation*, Bidart, May 24–25.

2020 **SMAI Congress**, *Event-based control for the wave equation*, Montpellier, June 21–25.

Team MAC PhD Seminar, *Event-based control for dynamical systems of finite or infinite dimensions*, Toulouse, September 22.

2019 **Team MAC PhD Seminar**, *Stabilization of the KdV equation*, Toulouse, July 1.

IMT Team Half-Day, *Small-time global stabilization of the KdV equation*, Toulouse, June 24.

Research activities

Supervision

PhD Student **Andreas Katsanikakis**, School of Electrical & Computer Engineering, Technical University of Crete, Greece. Co-Supervision with N. Bekiaris-Liberis

Master Student **Dimitrios Angelopoulos**, School of Electrical & Computer Engineering, Technical University of Crete, Greece. Co-Supervision with N. Bekiaris-Liberis

Responsibilities

2021–2023 **PhD representative**, *Doctoral School: Systems (EDSYS)*, Toulouse (France). Elected Representation of PhD students at the doctoral school (EDSYS).

Short term research Visit

2022 PhD student visit at SHOC Team Lille, with Nicolas Espitia (2 weeks).

Research activities (continued)

Event organization

2021–today — **Monthly ASA seminar**, *Association Sciences pour l'Afrique* (online).

Editorial/ Review activities

Journal
- *Automatica*
- *Systems & Control Letters*
- *IEEE Transactions on Automatic Control*
- *IEEE Control Systems Letters*
- *International Journal on Robust and Nonlinear Control.*
- *European Journal of Control*
- *Asian Journal of Control*
- *Journal of the Franklin Institute*
- *SIAM Journal on Control and Optimization*
- *IMA Journal of Mathematical Control and Information*

Conferences
- *IEEE American Control Conference*
- *IEEE Conference on Decision and Control*
- *IEEE European Control Conference*
- *IFAC Conference on Control Applications of Optimization.*

Teaching activities

Teaching assistant

2025–2026 — **School of Electrical & Computer Engineering, TUC**, Chania (Greece).
Class: Control of Distributed Parameter Systems
Duration: 10 hours

2024–2025 — **School of Electrical & Computer Engineering, TUC**, Chania (Greece).
Class: Control of Distributed Parameter Systems
Duration: 10 hours

2023–2024 — **School of Electrical & Computer Engineering, TUC**, Chania (Greece).
Class: Nonlinear control.
Duration: 10 hours

2022–2023 — **Toulouse INP-ENSEEIHT** .
Fourier analysis exercise section (+25 students, 4 hours).
TP Machine learning and Optimization with Julia and Python (16 Students, 10 hours).
TP Statistics with R, 2nd Year ENSEEIHT (+25 Students, 10 hours).
Duration: 24 hours
Number of students: +76 Students

INP Toulouse (40 hours) *Math Tutor, Prépa des INP* .
Duration: 40 hours
Number of students: 3 Students

Teaching activities (continued)

2021–2022

- **Licence 1, Université Paul Sabatier**, Toulouse (France). Maths L1 SVT/SDT.
  Class: differential and integral calculus, limits and continuity, sequences, probability, statistics, introduction to ordinary differential equations etc
  Duration: 64 hours
  Number of students: +70 Students (2 groups of TD)

- **BUT (University Bachelor of Technology) in Mechanical and Production Engineering — IUT Toulouse (2nd year)**. Parametric curves
  Duration: 12 hours
  Number of students: +30 Students

2020–2021

- **INSA Toulouse, STPI, 3rd year, 3IC** . Harmonic analysis, Introduction to Partial Differential Equations and Numerical Scheme,
  Duration: 12 hours
  Number of students: +25 Students

Miscellaneous Experience

Distinctions

2020 — Scholarship from the Centre International de Mathématiques et d'Informatique (CIMI), UPS, Toulouse, France.

2016 — Scholarship from the African Centre of Excellence in Mathematical Sciences and Applications (CEA-SMA), IMSP, Dangbo, Benin.

2013 — 4th national rank – Benin BAC C (2013)

References

Prof Jean-Michel Coron
Professor
Sorbonne University,
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Sophie Tarbouriech
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LAAS-CNRS Toulouse, France,
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DECE, TUC, Greece
nlimperis@tuc.gr

Prof Miroslav Krstic
Professor
UC San Diego,
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Nicolas Espitia
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CRIStAL UMR CNRS 9189, Lille, France,
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Lucie Baudouin
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LAAS-CNRS Toulouse, France,
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Sylvain Ervedoza
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IMB, Bordeaux, France,
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