



Taha EL HAJJI

Postdoctoral Researcher at Aalto University
on High-Speed Electrical Machines



taha.elhajji@aalto.fi
taha.elhajji@gmail.com



[Website](#)



[LinkedIn](#)



[Google Scholar](#)



[ResearchGate](#)



[Profile Aalto](#)

EXPERIENCE

- 2022-** **Aalto University, Espoo, Finland.**
- Postdoctoral Researcher on Modeling of High-Speed Electrical Machines,
 - Teaching Course of [Finite Element Theory in Electromechanics](#),
 - Instructor of Laboratory work [Electromechanics](#),
 - Supervisor of PhD and internship students,
 - Responsible for the scientific communication: [Website](#) and [LinkedIn page](#) of the research group.
 - Responsible for the scientific communication: [Website](#) and [LinkedIn page](#) of the project CoE-HiECSs.
- 2018-2022** **STELLANTIS, French Automotive Company, Vélizy, France.**
Research and Development Engineer, Industrial PhD work.
- 2021** **Laboratory SATIE – Paris-Saclay University, Gif-sur-Yvette, France.**
Supervisor of Master's Thesis
« Experimental Evaluation of AC Losses in Slot's Windings at high frequency ».
- 2021** **CNAM, French Graduate School in Electrical Engineering, Paris, France.**
Supervisor of Practical Works for Graduate Students.
- 2020** **EPE 2020 – ECCE: European Conference on Power Electronics**
Co-Chair of Conference Session.
- 2018** **STELLANTIS, French Automotive Company, Vélizy, France.**
Master Thesis: Modeling Analysis of Innovative Hybrid Electric Vehicles.
- 2017 – 2018** **University of Paris Diderot, Paris, France.**
Tutor of Mathematics for Undergraduate Students.
- 2017** **AKKA Technologies, Blagnac, France.**
Bachelor Thesis: Sizing of input PWM's Filter by analytic calculus to optimize the mass of the drone Omega.
- 2016 – 2017** **Laboratory LAPLACE – ENSEEIHT Engineering School, Toulouse, France.**
Academic Project: Sizing of the converter of an electric vehicle.

EDUCATION

- 2018 – 2023** **Paris-Saclay University – Laboratory SATIE, Gif-sur-Yvette, France.**
(March)
In partnership with STELLANTIS (French Automotive Company)
Ph.D.: [Modeling and Optimization of High-Speed Electrical Machines for Electric Vehicles](#).
- 2017 – 2018** **Paris-Saclay University, Top French University in Electrical Research, Gif-sur-Yvette, France.**
Master of Science by Research: Automotive Propulsion and Electrification.
- 2015 – 2017** **ENSEEIHT, Top French Graduate Schools in Electrical Engineering, Toulouse, France.**
Master of Electrical Engineering: Electrical Machines, Power Electronics, Control.
- 2015 – 2016** **University of Toulouse III, Toulouse, France.**
Bachelor of Mathematics: Linear Algebra, Probability, Functional Analysis, Topology.
- 2012 – 2015** **CPGE Henri Poincare – Pothier, Nancy-Orleans, France.**
French Preparatory Classes in Mathematics, Physics and Programming: *Three years of advanced classes to prepare fresh high school graduates to sit highly competitive national entrance exams.*

PUBLICATION

Google Scholar: [Profile Taha EL HAJJI](#)

- 2023** **AC Losses in Windings: Review and Comparison of Models with Application to Electric Machines**, T. El Hajji*, S. Hlioui, F. Louf, M. Gabsi, A. Belahcen, G. Mermaz-Rollet, M. Belhadi, *IEEE Access, Early Access*, (DOI: [10.1109/ACCESS.2023.3345014](#)).
- 2023** **Benchmark of High-Speed Electric Machines for Fully Electric Regional Aircraft Targeting 20kW/kg Specific Power**, T. El Hajji*, A. Lehikoinen, A. Hemeida, F. Martin, A. Belahcen, *Conference COMPUMAG 2023, Kyoto, Japan*.
- 2023** **Optimal Design of High-Speed Electric Machines for Electric Vehicles: A case Study of 100 kW V-shaped Interior PMSM**, T. El Hajji*, S. Hlioui, F. Louf, M. Gabsi, G. Mermaz-Rollet, M. Belhadi, *Machines* 11, no. 1: 57, (DOI: [10.3390/machines11010057](#)).
- 2020** **Hybrid model for AC Losses in High Speed PMSM for arbitrary flux density waveforms**, T. El Hajji*, S. Hlioui, F. Louf, M. Gabsi, G. Mermaz-Rollet, M. Belhadi, *ICEM Conference 2020, Gothenburg, Sweden*, (DOI: [10.1109/ICEM49940.2020.9271017](#)).
- 2019** **Efficiency Improvement of a Series-Parallel Hybrid Electric Powertrain by Topology Modification**, B. Kabalan, E. Vinot, C. Yuan, R. Trigui, C. Dumand, T. El Hajji*, *IEEE Transactions on Vehicular Technology* 2019, (DOI: [10.1109/TVT.2019.2952190](#)).
- 2019** **Sensitivity Analysis on the Sizing Parameters of a Series-Parallel HEV**, T. El Hajji*, B. Kabalan, Y. Cheng, E. Vinot, C. Dumand, *Conference of IFAC AAC 2019, Orleans, France*, (DOI: [10.1016/j.ifacol.2019.09.065](#)). Awarded: Young Author Award.

SKILLS

Softwares (Comsol, Ansys, Femm)	Communication	Project Management	Rigorous
Programming (Matlab, Python, Caml, Latex)	Self-Motivation	Critical Thinking	Attentive to Details

AWARDS

- 2019** **Young Author Award**, IFAC AAC Conference 2019, *Orleans, France*.

LANGUAGES

English Fluent	French Mother tongue	Finnish Basics
--------------------------	--------------------------------	--------------------------

HOBBIES

Scientific Communication on Linkedin (2 years)	Guitar (8 years)	Music Theory (9 years)	Taekwondo (3 years)	Brazilian Jiu Jitsu (1 year)
Swimming (12 years)	Soccer (10 years)	Chess (10 years)	Sudoku (5 years, School Award)	Kung-Fu (1 year)