



## The Typhoon HIL Best Paper Award – Europe 2025

### Overview

The Typhoon HIL Best Paper Award recognizes groundbreaking applied research that drives the digital transformation in power electronics and power systems. Honoring innovations rigorously validated using real-time simulations, Hardware-in-the-Loop (HIL), and digital twin technologies, the award celebrates operational technology (OT) solutions that deliver measurable, real-world impact. We champion the convergence of OT and information technology (IT), emphasizing test automation as a critical enabler of scalable, sustainable innovation.

Launched in Europe in 2025, this award aims to spotlight high-impact, transformative contributions with the potential to bring proven ideas from the lab into lasting global impact, engineering and promoting environmentally sustainable power technologies that scale.

### Scope of Eligible Work

Eligible papers should present applied research that advances digital power applications - including power electronics and power systems, preferably leveraging real-time simulation, HIL, or digital twin technologies, with demonstrating clear relevance and applicability to real-world systems.

### Purpose and Objectives

- Recognize and reward exceptional research papers that substantially advance power electronics and power systems through real-time simulation, HIL, and digital twin technologies.
- Promote applied research that goes beyond theory – focusing on OT software tested under realistic and extreme conditions with the potential to drive grid digitalization.
- Champion the use of test automation and HIL platforms as essential tools for verifying and validating real-world OT performance.
- Collaborate with academic institutions, societies, and industry experts to elevate standards and maximize practical global impact.
- Amplify outstanding research through Typhoon HIL's marketing and social media channels, ensuring global visibility and recognition for authors and institutions.

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## Award Scope and Eligibility Criteria

To be eligible for the 2025 award:

- Papers must be published in journals, transactions, or conference proceedings.
- Papers must be written in English.
- At least one of the authors must be affiliated with a European institution.
- Papers must have been published, accepted for publication, or presented at a conference within the past 5 years, between April 30, 2020, and April 30, 2025.
- Research must demonstrate clear applicability, particularly in the context of digitalization of the power grid, embedded software, control algorithms, and system validation.
- Priority is given to research that rigorously tests ideas using Hardware-in-the-Loop (HIL) platforms, whether Typhoon HIL, other vendors, or custom-built setups.

## Application Process

Authors are invited to submit their application via the official submission page [link]. Each submission must include:

- a PDF copy of the author version of the paper; and
- a completed application form.

Please note, the organizing committee reserves the right to limit the number of submissions to be evaluated to the first 100 complete applications received.

## Evaluation Process

To ensure fairness and impartiality, the papers will be evaluated by a technically qualified committee (hereinafter: the “Evaluation Committee”), based on the following predefined criteria:

- Technical contribution: applied research with demonstrated relevance to real-world systems and sustainability goals. Score from 1 to 5.
- Scope: focus on the development of software-defined solutions for digital power. Score from 1 to 5.
- Quality of verification and validation strategies: use of model-based engineering, HIL platforms, and test automation for rigorous verification and validation of real-world performance according to relevant performance metrics. Score from 1 to 5.



- Citation rate impact: Assesses the academic impact of the paper by calculating the number of Google Scholar citations divided by the number of years since publication.
  - A) Citation rate > 30 – 5 points
  - B) Citation rate between 21 and 30 – 4 points
  - C) Citation rate between 16 and 20 – 3 points
  - D) Citation rate between 11 and 15 – 2 points
  - E) Citation rate between 05 and 10 – 1 point
- Publication source impact: Assesses the visibility and academic relevance of the publication source. Points are assigned based on the journal's or conference's indexing and quartile ranking in Scopus or SCImago Journal Rank (SJR). The highest quartile between Scopus and SJR will be considered:
  - F) Journal or transaction indexed in Scopus/SJR, quartile Q1 – 5 points
  - G) Journal or transaction indexed in Scopus/SJR, quartile Q2 – 4 points
  - H) Journal or transaction indexed in Scopus/SJR, quartile Q3 or Q4 – 3 points
  - I) Conference papers indexed in Scopus/SJR – 2 points
  - J) Other journals, transactions, or conference papers – 1 point

In case of a tie, the Evaluation Committee reserves the right to consider additional indicators of impact, such as the number of citations (e.g., as indexed by Scopus), to help determine the final ranking.

The Evaluation Committee will consist of at least 5 experts from academia and/or industry. Each paper will be reviewed by two or more Evaluation Committee members, excluding any who may have co-authored the paper under evaluation. The final score will be based on the average of individual evaluations. Whenever possible, we will avoid matching Evaluation Committee members from the same institution as any of the authors of the paper, ensuring an impartial review process.



## Timeline

The inaugural Typhoon HIL Best Paper Award ceremony will be hosted during the Ee2025 Symposium, scheduled to be held in [...] from October 8–10, 2025 (exact timing and venue of the ceremony will be published in due course).

The following is a summary overview of relevant Typhoon HIL Best Paper Award milestones:

- Official launch of the Typhoon HIL Best Paper Award: May 20<sup>th</sup>
- Submission of applications: from May 20<sup>th</sup> to July 15<sup>th</sup>
- Evaluation: from July 15<sup>th</sup> to August 15<sup>th</sup>
- Award results: by September 1<sup>st</sup>
- Typhoon HIL Best Paper Award ceremony: October 8<sup>th</sup>

## Awards

The Evaluation Committee will evaluate all submissions and select the Top 5 Papers. These will be divided into two categories: the Best Paper Awards (Top 3) and the Outstanding Paper Selections (next 2), recognizing excellence and impact across a broader range of contributions.

### Best Paper Awards (Top 3):

- One HIL604 real-time simulator each.<sup>1</sup>
- Fully integrated software toolchain with all toolboxes unlocked and unlimited number of installations for two years.<sup>2</sup>

### Outstanding Paper Selection (next 2):

- One HIL101 real-time simulator each.<sup>3</sup>
- Fully integrated software toolchain with all toolboxes unlocked and unlimited number of installations for two years.<sup>4</sup>

### All top 5 papers will be awarded with:

- One full Ee2025 Symposium registration (i.e., covered for one of the authors).
- Typhoon HIL Best Paper Award 2025 certificate (i.e., issued in the names of all authors).

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<sup>1</sup> The real-time simulators will be awarded to the institution of one of the listed authors, to be chosen by the applicant. For the inaugural Typhoon HIL Best Paper Award 2025 edition, this must be an academic institution located in Europe. Ex-works delivery terms apply, i.e., all costs and risks, including transport, insurance, customs clearance, and delivery to the final destination are the responsibility of the entity receiving the awarded equipment.

<sup>2</sup> Following the expiration of the initial two-year period, certain additional charges may apply.

<sup>3</sup> Please see the relevant disclaimer in Footnote No. 1, which applies in this case as well.

<sup>4</sup> Please see the relevant disclaimer in Footnote No. 2 above, which applies in this case as well.



## Post-Award Opportunities

In addition to the prizes and recognition, awardees may be invited to engage in the following exclusive follow-up opportunities:

- **Present at Key Events:** Winners may be offered invited speaker slots at future Typhoon HIL or partner-hosted conferences, webinars, and symposia.
- **Collaborative Publications:** Opportunity to co-author a white paper or application note in partnership with Typhoon HIL, transforming the awarded research into a high-visibility resource for the industry.
- **Mentorship Roles:** Selected awardees may be invited to contribute as reviewers or advisors in future editions of the award or other challenges.
- **Research Spotlight:** Featured as part of the Academic or Industry Spotlight Series promoted through Typhoon HIL's channels.

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Disclaimer: Participation in Typhoon HIL Best Paper Award competition does not entitle any participant to any rights, benefits, or commitments from Typhoon HIL beyond those explicitly stated in this document. Typhoon HIL reserves the right to cancel, modify, or suspend the competition at any time and for any reason, without prior notice. Typhoon HIL makes no representation or warranty regarding the outcome of the competition and retains full discretion to determine the criteria, evaluation process, and selection of winners. Decisions of Typhoon HIL are final and binding in all matters related to the competition, and Typhoon HIL may, *inter alia*, at its sole discretion, adjust, modify, or substitute any prize without prior notice. No correspondence will be entered into regarding the outcome or decisions made in connection with the competition. By participating, applicants acknowledge and accept these terms and waive any claims against Typhoon HIL in relation to their participation or any result thereof.

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