IEEE PELS Prize Ph.D. Thesis Talk (P₃ Talk)
Guidebook 2020

1. Description

The IEEE PELS Digital Media Committee invites video submissions for the IEEE PELS Prize Ph.D. Thesis Talk. The goal of this competition is to showcase Ph.D. projects to the entire power electronics community - both in academia and industry. The Ph.D. Thesis Talks should up to 3 minutes long. Five IEEE PELS P3 Talks will be awarded each year.

2. Eligibility

- All Ph.D. graduates who defended their thesis across the world.
- Must and have received their Ph.D. certificate or have a proof of final thesis defense **AFTER 31 March 2018**.
- Must be IEEE PELS Members (Student Members or Regular Members).
- Previously participated are **NOT** eligible.

The topic of the Ph.D. thesis should be in one of the focus areas of the IEEE Power Electronics Society. Potential topics include, but are not limited to:

- Power electronic devices (Si and wide band-gap) and applications
- Power conversion topologies, modulation, and control
- Modeling and control of components, converters and systems
- Rotating/linear electro-mechanical devices and drive systems
- Passive components and materials
- Power electronic packaging, integration, and advanced manufacturing
- Reliability, diagnostics, prognostics, and health management
- EMI and EMC
- Thermal management, advanced cooling technologies
- Renewable and alternative energy
- Smart grids, micro-grids, and utility applications
- Electrical energy storage
- Energy conversion for Information Technology and communication systems
- Energy harvesting
- Energy efficiency for residential, commercial and industrial applications

- Wireless power transfer (WPT)
- Lighting applications and displays
- Transportation electrification
- High power/voltage power conversion
- High voltage isolation and lightning strike protection

3. Schedule

Open Submission	24 February 2020
Deadline to Apply	27 April 2020
Judging Phase	1 May - 30 June 2020
Winner Notified	1 July 2020
Award Presented	IEEE ECCE 2020 Conference
	11-15 October 2020
	Detroit, Michigan

4. Submission Criteria

Upload a video up to 3 minutes, summarizing the Ph.D. research **OR** a link to the video.

Submission requires the following information:

- Name (contact info)
- University
- IEEE Membership Number
- Date of Graduation
- Proof of Ph.D. Defense/Degree
- Thesis Title
- Brief abstract (< 200 words)
- Keywords (3-5)

All submissions must be in English. Translation of the certificate/diploma may be required or a proof letter from University / Institute or Ph.D. advisor.

5. Judging Criteria

Each submission will be reviewed by at least three judges from across the world to score and rank the video submissions. Reviewers will be asked to score the video submissions according to the judging rubric given below.

The winners will be identified based on the total score comprised of the following four aspects with their respective category weights:

- Problem definition (20%)
- Design methodology (20%)
- Achieved outcomes (20%)
- Quality of video and presentation (40%)

Judging Rubric
(On the scale of 1 to 5)
1 - Not satisfactory, 2 - Satisfactory, 3 - Good, 4 - Very good, 5 - Excellent

Judging Items		Scores
Problem definition	Clear research objectives, problems, and hypothesis	
	Rich in engineering judgement and insight	
Design methodology	Methods are technically and mathematically accurate	
	Well supported with analysis and experimental evidence (Are there any prototype/application demonstrations?)	
Achieved outcomes (contribution)	Contribution to the field (e.g., interesting to readers, stimulates new ideas, publications/result dissemination)	
	Valuable for practicing engineers or researchers	

Quality of video and presentation	Present within 3 minutes, personally appear in the video, and use of English (clear, concise, and correct)	
	Presents the material in a well-organized way - from framing the problem to presenting the proposed solution	
	Effective use of visual aids (figures, tables, charts, layout, etc.) improves effectiveness of video and presentation	
	Video and audio quality (e.g., resolution, clear audio, design)	

6. Presentation of /Awards

A certificate and a monetary award of US$500 will be awarded to each of the top five presenters at the Annual IEEE Energy Conversion Congress and Exposition.

7. Video Guidelines

- Prepare a video that highlights your Ph.D. thesis and its impact. The length of the video should NOT exceed 3 minutes. It is suggested that the video should begin with a "title page" that includes the title of the video/thesis, the name of the applicant (the Ph.D. student / graduate), the advisor's name, and the university/affiliation.
- The video should be a live recording where the presenter appears on the screen most of the time and uses displays to explain the main points of his/her research (see the video examples). Only voice over power point video presentations is not recommended.
- All entries must be submitted in English.
- The video resolution should be high, along with high quality audio.
- Video must be in one of the following formats for upload (note: video can uploaded online platforms (e.g. YouTube) and a link can also be

submitted. Please be aware that some video platforms may not be accessible from certain regions/countries; and it is the applicant's responsibility to ensure the video is accessible everywhere.
Video Formats: AVI, MOV, WMB, or MP4 (MP4 format is preferred).

- Use of copyrighted materials must be avoided. Proper citations/references to the materials should be included, including your own publications. It is the applicants' responsibility to resolve any copyright issues before submission.

8. Helpful Guidelines for Creating Videos

Following information is provided to assist participants in developing a good video that presents the project in an engaging way.

- **How to organize:**
  Effective presentation should convey the following five things about your thesis work:
  A. What is the problem and why it's important to solve it? (Problem Statement)
  B. What has been done so far to solve it? (State of the Art)
  C. What have you done with your methods that is different than what others have done so far? (Methodologies)
  D. What value does your approach add to the body of knowledge how does it advance the field? (Significance of Results)
  E. Where do we go from here? (Future Plan)

  The applicants are suggested to present the thesis like a story. It's not easy to condense the thesis into 3 minutes. Breaking your presentation down into smaller sections may help to smooth the presentation. For instance, the presentation may include:
  - *Introduction*:
    Create an interesting opening sequence that captures the audience's attention. Use the introduction to give a brief overview of the Ph.D. project, explain the problem(s) that have been addressed, the lack or limitations of prior-art solutions, and define the impact of the proposed solutions.
  - *Body*:

Use the main body of the video to present your design methodology and your solution. Support the video presentation with hardware/software prototype images and engineering analysis data to strengthen the technical content of the video.

- *Conclusion*:
Summarize the main results of the project/the video presentation, the expected impact to sponsor/other, and the knowledge gained in this project. Wrap up the video with a memorable ending.

Please be noted that all of the above are suggestions to structure your video presentation. You're expected to produce and submit *interesting and creative videos* that summarize your Ph.D. thesis work within 3 minutes.

- **How to narrate:**
The length of videos must be 3 minutes or less. Here are some hints that may be considered:
  - Carefully budget the time. Allow approximately 120 seconds to present the main body. Introduction and conclusion should take around 30 seconds each.
  - Use simple and easy to understand language. Avoid using long sentences and jargons.
  - Speak clearly. Maintain good speech pace. Avoid speaking at a pace that is either too fast or too slow. Pause at key points.

- **How to record a video:**
  - Use a quality camera and microphone.
  - Select a neutral background for the project.
  - Use visuals freely. Insert slides into the video if and when required. Keep the inserted slide simple. Text and complicated images can be distracting and will be hard to read on a mobile device. Do not entirely rely on slides to convey your message, rather use it to compliment your spoken oration.
  - Some samples can be found at
    https://www.youtube.com/watch?v=D_1MK3Ub9QM

https://www.youtube.com/watch?v=0K9iYUBCG_o
https://www.ted.com/talks
A short video by Aalborg University - ET

- **Video Editing software:**
  There is a variety of video editing software options including, but not limited to, the following:
  - **Video editing software**: Adobe Premiere Pro, Camtasia, iMovie
  - **Video engaging tools for animation**: There are various open source animation tools available. Some them are:
    - Pencil (https://www.pencil2d.org/)
    - Synfig Studios (https://www.synfig.org/)
    - Stykz (http://www.stykz.net/)
    - Blender (https://www.blender.org/)
    - Daze (http://www.daz3d.com/technology)

9. Intellectual Property

Describe your thesis without disclosing confidential information. Necessary permission from the sponsor should be obtained in case of the sponsored research project.

10. Nomination

All videos must be submitted to the OpenWater platform. An IEEE Account is required for login. The online nomination forms are saved in your account automatically and can be resumed at any time.

To be updated IEEE PELS P3 Talk Submission Portal: https://ieee.secure-platform.com/a/solicitations/329/home