A. OFFICERS

<table>
<thead>
<tr>
<th>Details</th>
<th>Chair (Program Year)</th>
<th>Vice Chair</th>
<th>Secretary</th>
<th>Treasurer</th>
</tr>
</thead>
<tbody>
<tr>
<td>Name</td>
<td>Edison R. da Silva</td>
<td>Francisco Neves</td>
<td>Ricardo L. Ribeiro</td>
<td>Damasio Fernandes</td>
</tr>
<tr>
<td>Member No.</td>
<td>3181385</td>
<td>41407497</td>
<td>92029322</td>
<td>80215774</td>
</tr>
<tr>
<td>E-mail</td>
<td><a href="mailto:ercdasilva@gmail.com">ercdasilva@gmail.com</a></td>
<td><a href="mailto:fneves@ufpe.br">fneves@ufpe.br</a></td>
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<td><a href="mailto:damasio@dee.ufcg.edu.br">damasio@dee.ufcg.edu.br</a></td>
</tr>
<tr>
<td>Start Date</td>
<td>January 2018</td>
<td>January 2018</td>
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<td>January 2018</td>
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B. WEB-PAGE

http://ewh.ieee.org/r9/bahia/ias_pes_pels/about/index.html

3. TECHNICAL MEETINGS

1) TITLE: “Predictive Control – When to use and when not?.”
DESCRIPTION: Technical meeting on predictive control applied to converters
SUMMARY: The predictive algorithm directly generates the firing pulses of the inverter, thus
eliminating a pulsewidth modulator. A preset magnitude of the current error is maintained,
defined as the difference between the current reference and the actual current space vector. The
inverter gate pulses are generated while maximizing the time differences between any two
switching instants. This minimizes the switching frequency, and thus the switching losses.
GUEST ATTENDANCE: 16
IEEE MEMBER ATTENDANCE: 4 (2 PES)
INVITED STUDENTS: yes
CITY: Recife
WHEN: February 26, 2018, 10 am
CO-SPONSOR NAME: GEPAE/Federal University of Pernambuco
SPEAKER: Prof. Joachim Holtz
ORGANIZATION: University of Wuppertal CITY: Wuppertal, STATE: Nordrhein-Westfalen
EMAIL: holtz@ieee.org
Tools submission: September, 30, 2018.

2) TITLE: “Predictive Control – When to use and when not?.”
DESCRIPTION: Technical meeting on predictive control applied to converters
SUMMARY: The predictive algorithm directly generates the firing pulses of the inverter, thus
eliminating a pulsewidth modulator. A preset magnitude of the current error is maintained,
defined as the difference between the current reference and the actual current space vector. The
inverter gate pulses are generated while maximizing the time differences between any two
switching instants. This minimizes the switching frequency, and thus the switching losses.
3) TITLE: “Energy Efficiency of Medium Voltage Drives.”
DESCRIPTION: Technical meeting improved energy efficiency via predictive control.
SUMMARY: Optimal pulsedwidth modulation can be achieved by off-line optimized pulse patterns, combined with online optimization at transients. An alternative predictive control directly generates the firing pulses of the inverter as part of a closed loop current control system, thus eliminating a pulsedwidth modulator. A gate pulse is generated whenever a predefined current error is exceeded. The next switching state is then determined. This minimizes the switching frequency and also the switching losses. The error vector is represented here in a rotor field oriented coordinate system and different error magnitudes are permitted in the respective axes.
GUEST ATTENDANCE: 18
IEEE MEMBER ATTENDANCE: 12 (4 PES)
INVITED STUDENTS: yes
CITY: Campina Grande
WHEN: March 01, 2018, 10 am
CO-SPONSOR NAME: COPELE and Student Branch of UFCG
SPEAKER: Prof. Joachim Holtz
ORGANIZATION: University of Wuppertal CITY: Wuppertal , STATE: Nordrhein-Westfalen
EMAIL: holtz@ieee.org
Tools submission: September, 30, 2018.

4) TITLE: “Communication in Multi-Modular Converters (MMCs)”
DESCRIPTION: Technical meeting on multi-modular converters.
SUMMARY: Created in 2001, Multi-Modular Converters (MMCs) have been growing in both academia and industry. The conversations are built to get information about the cell series and can get appointments in the house hundreds of thousands of volts. Typically, a central controller commands the keys in each cell through the dedicated connections, in a topology known as a star. As the number of cells grows, a greater number of connections and physical areas make it
difficult to maintain blood pressure and its safety. It is a work-based context that exploits the use of its digital devices to flex a connection topology between a central monitoring system and cells and enables complementary services such as sending information for cell monitoring or online parameterization the same.

GUEST ATTENDANCE: 10
IEEE MEMBER ATTENDANCE: 6 (2 PES)
INVITED STUDENTS: yes
CITY: Joao Pessoa
WHEN: 24 Abril 2018, from 8:30 to 10 am
CO-SPONSOR NAME: PPGEE/UFPB and IEEE Young Professionals of Bahia Section
SPEAKER: Tomas P. Correa
ORGANIZATION: Dep Electrónica, Universidad de Alcalá, Spain
EMAIL: tomapcorrea@gmail.com

5) TITLE: “Application of Artificial Intelligence Techniques to the Study of Energy Converters”
DESCRIPTION: Technical meeting on the application of artificial intelligence to energy converters.
SUMMARY: Artificial Intelligence techniques are introduced as tools in the study of energy converters. The technique of evolutionary algorithms (genetic algorithms and evolutionary strategies) is applied to optimization problems and/or search of solutions in order to generate new multilevel topologies.
GUEST ATTENDANCE: 29
IEEE MEMBER ATTENDANCE: 7 (2 PES)
INVITED STUDENTS: yes
CITY: João Pessoa
WHEN: October 03, 2018 from 10 to 11 am
CO-SPONSOR NAME: CPGEE/Federal University of Paraiba
SPEAKER: Prof. Juan Mauricio Villanueva
ORGANIZATION: Federal University of Paraiba, Brazil
EMAIL: jmauricio@cear.ufpb.br

6) TITLE: “Basic Techniques on Optimization”
DESCRIPTION: Technical meeting on optimization techniques
SUMMARY: Optimization has been applied in different areas of engineering. Application varies according to the problem to be solved, its complexity, expected results, etc. Yet, there is a great variety of optimization methods that can be applied to each problem. This way, the objective of the talk is to introduce optimization methods such as genetic algorithm, particle
swarm optimization (PSO) algorithm and artificial bee colony algorithm (ABC) algorithm and concepts of how to model the optimization functions, as well.

GUEST ATTENDANCE: 28
IEEE MEMBER ATTENDANCE: 5 (2 PES)
INVITED STUDENTS: yes
CITY: João Pessoa
WHEN: October 10, 2018 from 2 to 3 pm
CO-SPONSOR NAME: CPGEE/University of Paraiba and IEEE Young Professionnals of Bahia Section
SPEAKER: Prof. Camila Gehrke
ORGANIZATION: Federal University of Paraiba, Brazil
EMAIL: camilagehrke@gmail.com

7) TITLE: “The electric car and the renewable energy sources - Hype or solution?”
DESCRIPTION: Technical meeting on electric car and renewable energy sources
SUMMARY: The development of transportation vehicles is one of the greatest achievements of modern technology. However, the large number of automobiles in use has caused serious problems for the society and has been considered responsible for air pollution, global warming and intensive use of the limited oil resources. Does the electric car really save energy, decrease the carbon dioxide emission and the environmental pollution? Is it really a green solution? What kind of technical, economical, political and customer aspects affect that the recent development does not obtain broad acceptance? Is it possible to change this trend by using renewable energy sources? To answer these questions, the lecture gives an overview about the automotive structure, energy and electricity generation issues and the impact of the increasing use of renewable energy sources.
GUEST ATTENDANCE: 37
IEEE MEMBER ATTENDANCE: 10 (3 PES)
INVITED STUDENTS: yes
CITY: João Pessoa
WHEN: October 25, 2018 from 10:30 am to 12am
CO-SPONSOR NAME: CPGEE/University of Paraiba and IEEE Young Professionnals
SPEAKER: Dr. Peter Magyar
ORGANIZATION: IAS Chapters and Membership Department
EMAIL: peter.magyar@ieee.org
C. PLANS FOR UPCOMING YEAR

Effort will be made to increase the number of Members and Senior Members. Reorganize the Chapter Web page. A public program with speeches of public interests will be organized in four cities: Campina Grande, João Pessoa, Recife, and Natal. Projects together with the Student Branch are intended to be developed. One educational course on grounding is provided. The following technical speeches, including engineers of utility companies have been previewed for 2019 (dates to be decided): 1) Speaker: Prof. Edison R. da Silva, in Natal; 2) Speaker; Prof. Magnata, in Recife; 3) Speaker: Edison R. da Silva, in Recife; 4) Isaac Freitas: João Pessoa; 5) Speaker: Cursino Jacobina (Fellow), in Campina Grande; 6) Speaker: Antônio Marcus Lima in Campina Grande; 7) Speaker: Washington A. Neves, in Campina Grande; 8) Speaker: Benemar de Sousa, in Campina Grande; 9) Speaker: Antônio Marcus, in João Pessoa; 10) Speaker: Francisco de Assis, in Recife; 11) Speaker: Marcelo Cavalcanti, in Recife; 12) Mauricio Correa, in João Pessoa; 13) Speaker: José Rodriguez LDL from PELS (3 talks) in Recife, João Pessoa and Campina Grande; 14) 2 (two) speakers from utility companies.

D. OTHER ACTIONS

1. Three joint activities with IEEE Young Professionals have been provided to inform on Engineers in IEEE (activities 4, 6 and 7).
2. Two Senior Members proposed
3. Two joint activities with PEL/IA Student Chapter of Federal University of Campina Grande
4. Effort to increase the number of members.
5. Participation in the organization of the 22nd Congress on Automation and Control, held from September 8-12, 2018.

Submitted at Jan 31, 2019 by Edison R.C. da Silva (chapter Chair)
e-mail: ercdasilva@gmail.co