# Improving Students' Writing Skills through **Effective Small-group Peer Feedback**

# Abstract

The Electrical Engineering (EE) department has pursued efforts to innovate the existing study programs both at bachelor and master level. One of the major challenges is the growing number of students. In addition, one of the major problems identified by the teaching staff is the quality of writing skills.

Giving feedback to students' reports and paying attention to individual need to be strengthened. Peer review and peer feedback in a small group setting has become an alternative to improve writing skills. These, together with the feedback by expert teachers and supervisors, and with the use of appropriate feedback instruments such as rubrics or criteria lists, are suitable methods to enhance peer feedback.

# **Objective**

- To develop an educational strategy to provide effective small-group peer feedback that can be used within the department in BEP projects but also in other courses at bachelor and master level.
- To improve students' writing skills through effective peer feedback.
- To create an IT online platform for the students to provide feedback during external internships.

# Preparation of Papers for IEEE TRANSACTIONS and JOURNALS (May 2007)

First A. Author, Second B. Author, Jr., and Third C. Author, Member, IEEE

ater. Otherwise, use this document as an instruction set. The

which allows you to see the footnotes. Then, type over Abstract—These instructions give you guidelines for preparing sections of TRANS-JOUR.DOC or cut and paste from another papers for IEEE TRANSACTIONS and JOURNALS. Use this document and use markup styles. The pull-down style menu is document as a template if you are using Microsoft Word 6.0 or at the left of the Formatting Toolbar at the top of your Word



electronic file of your paper will be formatted further at IEEE. Define all symbols used in the abstract. Do not cite references in the abstract. Do not delete the blank line immediately above the abstract; it sets the footnote at the bottom of this column

Index Terms-About four key words or phrases in alphabetical order, separated by commas. For a list of suggested keywords, send a blank e-mail to keywords@ieee.org or visit http://www.ieee.org/organizations/pubs/ani\_prod/keywrd98.txt

#### I. INTRODUCTION

THIS document is a template for Microsoft *Word* versions **1** 6.0 or later. If you are reading a paper or PDF version of this document, please download the electronic file,

	window (for example, the style at this point in the document is					
	"Text"). Highlight a section that you want to designate with a					
certain style, then select the appropriate name on the s						
	menu. The style will adjust your fonts and line spacing. Do					
not change the font sizes or line spacing to squeeze more						
	text into a limited number of pages. Use italics for					
	emphasis; do not underline.					

To insert images in Word, position the cursor at the insertion point and either use Insert | Picture | From File or copy the image to the Windows clipboard and then Edit | Paste Special | Picture (with "float over text" unchecked). IEEE will do the final formatting of your paper. If your paper is intended for a conference, please observe the conference page limits.

beach <sup>3</sup>			Search
	American Mile Area		Login   Preferences   Helo/Guide   About Tro muse Source   View Trickers   Seen Tricker   Seen
	Constant Was May	Timetine Boatiman Bri	
			Start Page   Index   History
Vhat is peach <sup>3</sup>			
peach <sup>3</sup> is a system for the presentation of assignments, the collection, storage, and automated and/or manual eval results. Originally, the system was developed with a focus on programming education assignments and programmin assignments that require submission of work in the form of one or more files.			Latest release: 1.0-beta4
Participants need to register with the system and join the "course(s)" of interest. Assignments can be grouped, availability of assignments can be timed, and there are group and Individual submission deadlines. For each assignment it is possible to define an automatic evaluation chain, ranging from a simple check on file type/size to compiling submitted programm, running the executable with various input cases, capatring the produced output, checking the correctness of the output, and turning that into a numeric score.			Open source, Artistic License v2
Generations 1 and 2 (called PEACH/vs) have been in use for several years at various institutions, including the <sup>O</sup> Eindeveloped and the OPUNiversity of Tampere in Finland. Generation 3 has been renamed to peach <sup>3</sup> and has been in u	Documentation For users   For administrators		
peach <sup>3</sup> is written in Python (server side) and JavaScript (client side) and uses <sup>10</sup> Django as the web server framework and <sup>10</sup> Ext15 for the web-based user interface. A new version of peach <sup>3</sup> currently in development that replaces the Ext15 user interface with a <sup>10</sup> Boatstrap based interface.			Support groups For users   For administrators
ublications			
A list of publications can be found here. There is also a "blog with posts about peach?.			prach'
Who is using peach <sup>*</sup>			p <sup>3</sup> Main Language Incoloring
peach <sup>3</sup> is being used by:			Total Lines of Code: 82,073
Eindhoven University of Technology			Active Coetcharon: 2 Control Activity
Prontys Hogescholen     PETH Zürich			the dealers in the second s
• •• ETH Zurich			5 year control count
uthors/Contributors			Spland Aug 11, 2013 Open HUB
Erik Scheffens     Tom Verhoeff Stefan Geuns Marijn Kruisselbrink     Paul Wagnener			
Robert Leenders     Josif Macesanu			
Maikel Steneker			

## Context

The EE department is keen on looking for suitable educational methods that can bring about potential solutions for the development of academic writing skills. Furthermore, to optimize feedback and relieve the teachers' and supervisor's burden, potential effective educational options to explore is peer feedback in small-groups.

Within the EE department, there is special interest to work on new educational methods that can allow effective supervision by researching possibilities to organize feedback. These methods will be used and explored in order to identify the most suitable one(s) to supply the need for feed-back, feed-up and feed-forward to guarantee that students' writing skills are at the level of the end qualifications of a Bachelor engineer and a Master graduate.



**Department of Electrical** Engineering dr. Sonia Gomez s.m.gomez.puente@tue.nl

# **Practice**

Improving writing skills in EE courses through peer feedback.

**Pilot 1 (finished)** – Improving writing skills in Bachelor End Projects (BEP) through peer-to-peer review and feedback

Pilot 2 (in progress) – Integrating writing skills within two master courses and using peer-to-peer review and feedback in an online platform (PEACH)

### Peer feedback strategy

Training students in

- Writing skills
- Peer feedback methods

#### Feedback by

- Peers
- Trainers
- Expert teachers & supervisors

#### **Educational supervision methods**

- Evaluation rubrics of Academic writing following IEEE guidelines
- Criteria lists for IEEE papers
- Before: Self-assessment instrument: diagnostic test level in writing skills
- After: Self-assessment instrument: Exit test level



**Eindhoven School of** Education dr. Marieke Thurlings m.c.g.thurlings@tue.nl

# **Results of the first pilot**

- 11 BEP Smart Sustainable Society students were trained in peer feedback and peer assessment methods.
- Teachers/supervisors have learned and use coaching methods to provide feedback.
- An educational and effective strategy grounded on peer feedback that can be easily adopted in other EE bachelor and master courses.
- Training materials and feedback instruments were developed and piloted to be used in all kinds of courses and settings.
- The quality of students' reports has been improved.

intranet.tue.nl/cee

# Learn all about innovations in engineering education at the TU/e Innovation Day

Technische Universiteit Eindhoven University of Technology

