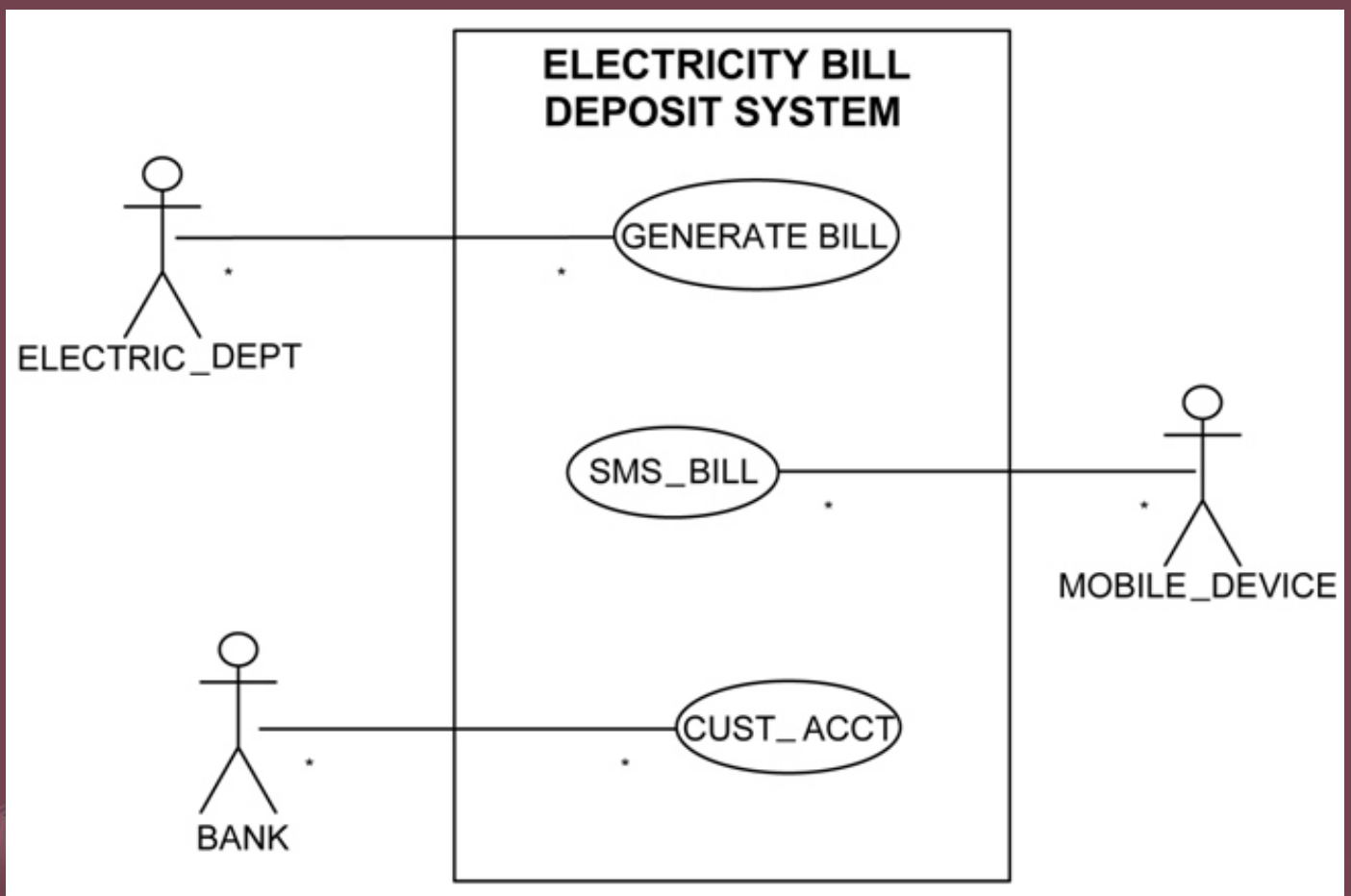




# Journal of Software Engineering and Applications



# Journal Editorial Board

<http://www.scirp.org/journal/jsea>

---

## Editor-in-Chief

**Prof. Jan Jürjens** Technical University Dortmund, Germany

## Executive Editor in Chief

**Prof. Yanxiang He** Wuhan University, China

## Editorial Advisory Board

**Prof. Hengda Cheng** Utah State University, USA

**Dr. Mengchi Liu** Carleton University, Canada

**Prof. Yi Pan** Georgia State University, USA

## Editorial Board (According to Alphabet)

<b>Dr. Ognjen Arandjelović</b>	University of Cambridge, UK
<b>Prof. Stéphane Bordas</b>	Cardiff University, UK
<b>Dr. Cinzia Bernardeschi</b>	Universita' di Pisa, Italy
<b>Prof. Guoliang Chen</b>	University of Science and Technology of China, China
<b>Dr. Kim-Kwang Raymond Choo</b>	Australian Institute of Criminology, Australia
<b>Prof. Steven A. Demurjian</b>	The University of Connecticut, USA
<b>Dr. Zonghua Gu</b>	Zhejiang University, China
<b>Prof. James Kwangjune Hahn</b>	The George Washington University, USA
<b>Dr. Nabil Hameurlain</b>	University of Pau, France
<b>Prof. Keping He</b>	Wuhan University, China
<b>Dr. Wolfgang Herzner</b>	Austrian Institute of Technology, Austria
<b>Dr. Vassilios (Bill) Karakostas</b>	City University, UK
<b>Prof. Chang-Hwan Lee</b>	Dongguk University, Korea (South)
<b>Dr. Weiping Li</b>	Peking University, China
<b>Prof. Kasi Periyasamy</b>	University of California, USA
<b>Prof. Miodrag Potkonjak</b>	University of Wisconsin-La Crosse, USA
<b>Dr. Ruben Prieto-Diaz</b>	James Madison University, Spain
<b>Prof. Juergen Rilling</b>	Concordia University, Canada
<b>Prof. Michael Ryan</b>	Dublin City University, Ireland
<b>Dr. Midthe V. Srinath</b>	Anna University, India
<b>Dr. Ladan Tahvildari</b>	University of Waterloo, Canada
<b>Prof. Marinus G. J. van den Brand</b>	Eindhoven University of Technology, Netherlands
<b>Prof. Shi Ying</b>	Wuhan University, China
<b>Prof. Xin Yuan</b>	Florida State University, USA
<b>Dr. Mao Zheng</b>	University of Wisconsin-La Crosse, USA

## Editorial Assistant

**Tian Huang** Scientific Research Publishing, USA

## TABLE OF CONTENTS

**Volume 4    Number 3**

**March 2011**

### **Agent-Based Synthesis of Distributed Controllers for Discrete Manufacturing Systems**

E. López-Mellado.....137

### **The Tyranny of the Vital Few: The Pareto Principle in Language Design**

V. Winter, J. Perry, H. Siy, S. Srinivasan, B. Farkas, J. McCoy.....146

### **Sensor Robot Planning in Incomplete Environment**

S. Zhong, Z. H. Yin, X. D. Yin, Y. F. Yao.....156

### **A Design of a PID Self-Tuning Controller Using LabVIEW**

M. A. K. Alia, T. M. Younes, S. A. Alsabbah.....161

### **Development of Equivalent Virtual Instruments to PLC Functions and Networks**

M. A. K. Alia, T. M. Younes, M. Abu Zalata.....172

### **Software Reliability Early Prediction in Architectural Design Phase: Overview and Limitations**

L. K. Singh, A. K. Tripathi, G. Vinod.....181

### **Mobile Based Electricity Bill Deposit System through UML**

P. K. Chaurasia, V. Saxena.....187

### **A Model of Representing Extension and Shrinking for Spatial Relations**

S. Zhong, J. P. Wan.....191

---

The figure on the front cover is from the article published in the *Journal of Software Engineering and Applications*, 2011, Vol. 4, No. 3, pp. 187-190 by Pawan Kumar Chaurasia and Vipin Saxena.

# **Journal of Software Engineering and Applications (JSEA)**

## **Journal Information**

### **SUBSCRIPTIONS**

The *Journal of Software Engineering and Applications* (Online at Scientific Research Publishing, [www.SciRP.org](http://www.SciRP.org)) is published monthly by Scientific Research Publishing, Inc., USA.

#### **Subscription rates:**

Print: \$59 per issue.

To subscribe, please contact Journals Subscriptions Department, E-mail: [sub@scirp.org](mailto:sub@scirp.org)

### **SERVICES**

#### **Advertisements**

Advertisement Sales Department, E-mail: [service@scirp.org](mailto:service@scirp.org)

#### **Reprints (minimum quantity 100 copies)**

Reprints Co-ordinator, Scientific Research Publishing, Inc., USA.

E-mail: [sub@scirp.org](mailto:sub@scirp.org)

### **COPYRIGHT**

Copyright©2011 Scientific Research Publishing, Inc.

All Rights Reserved. No part of this publication may be reproduced, stored in a retrieval system, or transmitted, in any form or by any means, electronic, mechanical, photocopying, recording, scanning or otherwise, except as described below, without the permission in writing of the Publisher.

Copying of articles is not permitted except for personal and internal use, to the extent permitted by national copyright law, or under the terms of a license issued by the national Reproduction Rights Organization.

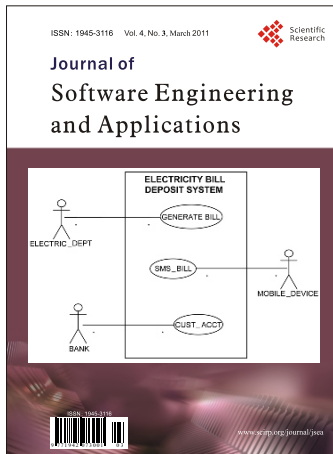
Requests for permission for other kinds of copying, such as copying for general distribution, for advertising or promotional purposes, for creating new collective works or for resale, and other enquiries should be addressed to the Publisher.

Statements and opinions expressed in the articles and communications are those of the individual contributors and not the statements and opinion of Scientific Research Publishing, Inc. We assume no responsibility or liability for any damage or injury to persons or property arising out of the use of any materials, instructions, methods or ideas contained herein. We expressly disclaim any implied warranties of merchantability or fitness for a particular purpose. If expert assistance is required, the services of a competent professional person should be sought.

### **PRODUCTION INFORMATION**

For manuscripts that have been accepted for publication, please contact:

E-mail: [jsea@scirp.org](mailto:jsea@scirp.org)



## Journal of Software Engineering and Applications (JSEA)

ISSN 1945-3116 (print) ISSN 1945-3124 (online)

[www.scirp.org/journal/jsea](http://www.scirp.org/journal/jsea)

JSEA publishes four categories of original technical articles: papers, communications, reviews, and discussions. Papers are well-documented final reports of research projects. Communications are shorter and contain noteworthy items of technical interest or ideas required rapid publication. Reviews are synoptic papers on a subject of general interest, with ample literature references, and written for readers with widely varying background. Discussions on published reports, with author rebuttals, form the fourth category of JSEA publications.

### Editor-in-Chief

Prof. Jan Jürjens, Technical University Dortmund, Germany

### Subject Coverage

- Automated Software Design and Synthesis
- Automated Software Specification
- Component-Based Software Engineering
- Computer-Supported Cooperative Work
- Formal Methods
- Knowledge Acquisition
- Object-Oriented Technology
- Patterns and Frameworks
- Process and Workflow Management
- Program Understanding Issues
- Programming Languages and Software Engineering
- Reflection and Metadata Approaches
- Reliability and Fault Tolerance
- Requirements Engineering
- Reverse Engineering
- Software Architecture
- Software Design Methods
- Software Domain Modeling and Meta-Modeling
- Software Engineering Decision Support
- Software Engineering Education
- Software Maintenance and Evolution
- Software Process Modeling
- Software Quality
- Software Reuse
- Software Testing
- Tutoring, Help, Documentation Systems

### Notes for Prospective Authors

Submitted papers should not have been previously published nor be currently under consideration for publication elsewhere. All papers are refereed through a peer review process. For more details about the submissions, please access the website.

### Website and E-Mail

Website: <http://www.scirp.org/journal/jsea>

E-Mail: [jsea@scirp.org](mailto:jsea@scirp.org)