# Special Session on Benchmarking and Testing for Production and Logistics Optimization

**2014 IEEE Symposium on Computational Intelligence in Production and Logistics**
**2014 IEEE Symposium Series on Computational Intelligence (SSCI 2014)**
**December 9-12, 2014, Orlando, Florida, USA**
http://www.it-weise.de/documents/files/ssci14/index.html

## Brief Description

The Special Session on Benchmarking and Testing for Production and Logistics Optimization of the 2014 IEEE Symposium on Computational Intelligence in Production and Logistics Systems (CIPLS 2014), part of the 2014 IEEE Symposium Series on Computational Intelligence (IEEE SSCI 2014), invites the submission of original and unpublished research papers.

Logistics and production are two of the main sectors of any country's industry. Increasing their efficiency is of utmost importance, not only for the economy but also for environmental reasons. Here, small percentages saved in terms of costs, time, or fuel can turn into large absolute improvements. Optimization methods have been successfully applied for this purpose for many years and are known to significantly improve over the results of manual planning, design, scheduling, or engineering. In this session, we solicit contributions that investigate how to assess and compare the quality of optimization methods in this domain – because choosing a better optimization approach for a problem may yield a similar or even larger improvement as moving from manual planning to optimization in the first place.

In conference and journal publications, usually optimization algorithms are the center of attention. Presentations mainly focus on introducing newly developed algorithms, sub-algorithms, and adaptation strategies, which achieve better results on existing benchmark instances. Even if a new optimization task is introduced, this virtually always happens together with a new solution approach and usually the latter is considered as the main contribution of the work. The topics of benchmarking, evaluation, testing, and verification are severely underrepresented, despite their importance. In this session, however, the optimization algorithms take the back seat, while benchmarking and performance assessment are the main theme.

This special session will provide a common forum to exchange ideas and findings for researchers and practitioners who are interested in comparing and testing Computational Intelligence methods in the domain of production and logistic optimization. All accepted papers in this session will be included in the Proceedings of the IEEE CIPLS 2014 published by IEEE Press and indexed by EI.

## Topics of Interest

The main theme of the Special Session on Benchmarking and Testing for Production and Logistics Optimization is the benchmarking, testing, proofing of features, verification, and comparing of optimization methods for production, logistics, and transportation systems. Within this domain, the topics of interest therefore include, but are not limited to:

- **Experimentation**
  - Performance Measures for Optimization
  - Benchmark Problems and Cases
  - Experimental Designs
  - Experimental Approaches
  - Automation of Experiments and Evaluation
  - Real-World Benchmark Instances
- **Algorithm Comparison and Statistics**
  - Comparison Studies of Different Algorithms
  - Statistical Evaluation of Algorithms
  - Difficulty Measures for Optimization Problems
  - Evaluation of Multi-Objective Algorithms and Problems
- **Testing and Verification**
  - Testing Theory
  - Software Testing (including Unit Testing)
  - Theoretical Verification
  - Assessment of Algorithm Performance in Productive Systems
- **Theoretical Analysis**
  - Proofing of (Performance) Features
  - Runtime Analysis and Comparison
  - Convergence Proofs
  - Formal Algorithm Comparison
- **Machine Learning for Benchmarking**
  - Data Mining of Performance Data
  - Classification of Algorithm Behavior

## Instructions for Authors

Prospective authors are invited to submit papers of no more than eight pages in IEEE double-column conference style (U.S. Letter format), including results, figures and references, with a maximum file size of 4MB, in PDF format. More information regarding the submission process can be found at the conference website http://ieee-ssci.org/.

The papers are to be submitted via the official conference website submission form (http://ieee-cis.org/conferences/ssci2014/upload.php) where "Special Session on Benchmarking and Testing for Production and Logistics Optimization" should be selected as **main** research topic.

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| **Paper Submission Deadline:** | 15 | July | 2014 (extended) |
| Notification of Acceptance: | 05 | September | 2014 |
| Camera-Ready Copy Due: | 05 | October | 2014 |
| Early Registration: | 05 | October | 2014 |
| Conference Presentation: | 9-12 | December | 2014 |

For more information please contact Thomas Weise at tweise@ustc.edu.cn.

## Session Chairs

- Thomas Weise, University of Science and Technology of China, Hefei, China
- Jörg Lässig, University of Applied Sciences Zittau/Görlitz, Germany

## International Program Committee

- Thomas Bartz-Beielstein, Cologne University of Applied Sciences, Germany
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- Zhenyu Yang, National University of Defense Technology, China
- Yang Yu, Nanjing University, China

## Hosting Events

### 2014 IEEE Symposium Series on Computational Intelligence (IEEE SSCI 2014)

Welcome to the sunshine of Orlando, Florida for the IEEE Symposium Series on Computational Intelligence (IEEE SSCI 2014), a flagship international symposium of symposia sponsored by the IEEE Computational Intelligence Society (CIS) promoting all aspects of Computational Intelligence (CI). The IEEE SSCI 2014 co-locates multiple exciting symposiums at one single location, providing a unique opportunity to encourage cross-fertilization and collaboration in all areas of CI. The IEEE SSCI 2014 features a large number of keynotes, tutorials, and special sessions. The IEEE SSCI 2014 will also offer a number of travel grants as well as an exciting Doctoral Consortium. In addition to the technical program, Orlando, “The Theme Park Capital of the World”, features tremendous world-class entertainment, resorts, shopping, dining, and cultural activities.

http://ieee-ssci.org/

### 2014 IEEE Symposium on Computational Intelligence in Production and Logistics Systems (CIPLS 2014)

The management of production and logistics systems in today’s fierce competition environment is a difficult task and has become progressively complex. Major changes in products, processes, technologies, and societies bring along remarkable challenges and increasing market demands. Modelling and optimisation of complex problems arising in production and logistics systems is of paramount importance in surviving and achieving competitive gains in productivity and quality.

In recent years, the advancements in computer technology have allowed researchers to tackle large-scale problems and to develop and integrate efficient optimisation techniques for solving them. Within this context, CIPLS aims to address issues related to the design, planning, control, and continuous improvement of production and logistics systems using computational intelligence, including local search methods, evolutionary algorithms and other nature-inspired optimisation techniques. The intention is to cover various aspects of production from aggregate planning to shop-floor execution systems and modelling, planning and control of logistics systems. Studies incorporating real-world applications are highly encouraged.

http://people.sabanciuniv.edu/catay/CIPLS2014.htm
http://140.113.34.10/CIPLS.html