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Parallel Problem Solving from Nature – PPSN XVI


16th International Conference, PPSN 2020
Leiden, The Netherlands, September 5–9, 2020
Proceedings, Part II

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Preface

Welcome to the two volumes of the proceedings of the Conference on Parallel Problem Solving from Nature, PPSN XVI, September 5–9, 2020, Leiden, The Netherlands! When we applied to host PPSN XVI in Leiden, we were not able to imagine anything like the COVID-19 pandemic. Then the new reality hit us, and we were forced to make decisions under uncertain, dynamically changing conditions and constraints, and certainly with multiple, conflicting objectives. Scientific expertise in evolutionary computation was only partially helpful for this. At the time of writing this preface, June 2020, we believed that a hybrid conference format would be the best approach for dealing with the situation: For those who were not able to travel to Leiden, we decided to run PPSN on-site, with printed posters, workshops, tutorials, keynotes, food, and drinks. For those who could not travel to Leiden, we offered it online, with keynote live streams, poster and tutorial videos, and poster discussion rooms in which attendees could discuss with the poster presenters. The virtual part of the conference also allowed participants to meet other attendees online and start a conversation. The challenging and exciting experiment combining the on-site and online world gave attendees the best of both worlds and the flexibility needed in these difficult times – hopefully giving attendees the best of both worlds and the flexibility needed in these difficult times. Not every detail of our hybrid plan turned out as expected, but we are quite sure that some of the changes to conference organization we have tried will remain, and with the help of applied AI and the digitalization of communication, conference experiences in future will not only change but also improve.

PPSN 2020 was also quite a special event since it was the 30th anniversary of the PPSN conference! In particular for Hans-Paul Schwefel, the founder of PPSN, this is a wonderful confirmation of a successful concept – so our congratulations go to you in particular, Hans-Paul. For Thomas Bäck, who was a first-year PhD student of Hans-Paul in 1990, at PPSN I, it is an honor to be involved in this as a general co-chair, and both Mike Preuss and he share the great experience of having been supervised in their PhD studies by Hans-Paul. Although, as Thomas admits, 1990 was easier since the final conference responsibility was with Hans-Paul. We are particularly proud to have Hans-Paul and Grzegorz Rozenberg, the founder and magician of Natural Computing in Leiden, as our honorary chairs for PPSN 2020.

PPSN 2020 received a total of 268 paper submissions written by 690 authors from 44 different countries. Our Program Committee (PC) comprised 271 members from 39 countries. Together, and despite the individual challenges that the coronavirus crisis imposed on each one of us, the PC members wrote 812 review reports in total, which corresponds to an average 3 reviews per paper. Each review was read and evaluated by one of the PC chairs. Where reviewers disagreed in their assessment, a discussion among PC members was started. In some cases, authors were contacted to provide

additional clarification about a technical aspect of their work. In other cases, additional reviews were solicited. The review process resulted in a total number of 99 accepted papers, which corresponds to an acceptance rate of 36.9%. All accepted papers can be found in these LNCS proceedings of PPSN. In addition to the main conference program, an attractive selection of 14 tutorials, 6 workshops, and 3 competitions was offered to participants.

The topics covered classical subjects such as Genetic and Evolutionary Algorithms, Combinatorial Optimization, Multi-objective Optimization, and Real-World Applications of Nature-Inspired Optimization Heuristics. The conference also included quite a number of papers dealing with broader aspects of Artificial Intelligence, reflecting the fact that search and optimization algorithms indeed form an important pillar of modern AI.

As always, PPSN is an interactive forum for inspiring discussions and exchanges, stimulated by on-site and online poster presentations. Three distinguished invited speakers give keynotes at the conference: Carme Torras on assistive and collaborative robotics, Eric Postma on machine learning in image recognition and cognitive modeling, and Christian Stöcker on the direction of AI in general and its effects on society. We are grateful that they accepted our invitation to present their keynotes on-site.

The list of people who made this conference possible is very long, showing the impressive collaborative effort and commitment both of the scientific community that is behind PPSN and of the organizers. This includes all authors, who recognize and acknowledge the scientific quality of this conference series by their submission, and all Program Committee members, who are volunteering although everybody in the community is overloaded with reviewing requests. Our thanks go to the tutorial speakers, workshop organizers, and attendees of the conference and its events.

We are also very grateful for the contributions of the workshop chair, Anna Esparcia-Alcázar, competition chair, Vanessa Volz, and tutorial chair, Ofer Shir. The keynote chair, Aske Plaat, and industrial liaison chair, Bernhard Sendhoff. Our financial chair, Felix Wittleben, who had a difficult time due to the dynamically changing situation. Our publicity chairs, Bas van Stein and Wenjian Luo, who made sure the community heard about PPSN 2020. Our local organization team, Jayshri Murli, Hestia Tamboer, and Roshny Kohabir, who took care of a million things and made the impossible possible. And then, for the conference days, the PhD and master students who helped manage the small but important details. Moreover, all of a sudden, we needed an online conference chair team, for which Bas van Stein, Diederick Vermetten, and Jiawen Kong volunteered to make the online part of the conference happen, and Anna Kononova also joined the team to help with many aspects of the organization. Finally, we would like to express our gratitude to the Leiden Institute of Advanced Computer Science (LIACS), Leiden University for hosting this event, to Leiden University, for its support, particularly to Springer Nature for financing the Best Paper Award, and to the Confederation of Laboratories for Artificial Intelligence

Research in Europe (CLAIRE) and Honda Research Institute Europe GmbH for their invaluable support in countless ways.

Thank you very much to all of you, for making PPSN 2020 possible! We are very proud that we have managed this, under difficult conditions, as a team effort.

July 2020

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Organization

PPSN 2020 was organized and hosted by the Leiden Institute of Advanced Computer Science, Leiden University, The Netherlands. Leiden University was founded in 1575 and is the oldest university of The Netherlands. Sixteen persons associated with Leiden University (either as PhD student or (guest-) researcher) became Nobel prize winners and it was the home of many illustrious individuals such as René Descartes, Rembrandt van Rijn, Christiaan Huygens, Hugo Grotius, Baruch Spinoza, and Baron d'Holbach.

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Contents – Part II

Genetic Programming

Generation of New Scalarizing Functions Using Genetic Programming	3
<i>Amin V. Bernabé Rodríguez and Carlos A. Coello Coello</i>	
The Usability Argument for Refinement Typed Genetic Programming	18
<i>Alcides Fonseca, Paulo Santos, and Sara Silva</i>	
Program Synthesis in a Continuous Space Using Grammars and Variational Autoencoders	33
<i>David Lynch, James McDermott, and Michael O'Neill</i>	
Cooperative Co-Evolutionary Genetic Programming for High Dimensional Problems	48
<i>Lino Rodriguez-Coayahuil, Alicia Morales-Reyes, Hugo Jair Escalante, and Carlos A. Coello Coello</i>	
Image Feature Learning with Genetic Programming.	63
<i>Stefano Ruberto, Valerio Terragni, and Jason H. Moore</i>	
Learning a Formula of Interpretability to Learn Interpretable Formulas	79
<i>Marco Virgolin, Andrea De Lorenzo, Eric Medvet, and Francesca Randone</i>	

Landscape Analysis

On Stochastic Fitness Landscapes: Local Optimality and Fitness Landscape Analysis for Stochastic Search Operators	97
<i>Brahim Aboutaib, Sébastien Verel, Cyril Fonlupt, Bilel Derbel, Arnaud Liefvooghe, and Belaïd Ahiod</i>	
Fitness Landscape Analysis of Dimensionally-Aware Genetic Programming Featuring Feynman Equations.	111
<i>Marko Durasevic, Domagoj Jakobovic, Marcella Scoczynski Ribeiro Martins, Stjepan Picek, and Markus Wagner</i>	
Global Landscape Structure and the Random MAX-SAT Phase Transition . . .	125
<i>Gabriela Ochoa, Francisco Chicano, and Marco Tomassini</i>	

Exploratory Landscape Analysis is Strongly Sensitive to the Sampling Strategy	139
<i>Quentin Renau, Carola Doerr, Johann Dreo, and Benjamin Doerr</i>	
One PLOT to Show Them All: Visualization of Efficient Sets in Multi-objective Landscapes.	154
<i>Lennart Schäpermeier, Christian Grimme, and Pascal Kerschke</i>	
Multi-objective Optimization	
On Sharing Information Between Sub-populations in MOEA/S.	171
<i>Lucas de Almeida Ribeiro, Michael Emmerich, Anderson da Silva Soares, and Telma Woerle de Lima</i>	
Multi-objective Optimization by Uncrowded Hypervolume Gradient Ascent	186
<i>Timo M. Deist, Stefanus C. Maree, Tanja Alderliesten, and Peter A. N. Bosman</i>	
An Ensemble Indicator-Based Density Estimator for Evolutionary Multi-objective Optimization	201
<i>Jesús Guillermo Falcón-Cardona, Arnaud Liefooghe, and Carlos A. Coello Coello</i>	
Ensuring Smoothly Navigable Approximation Sets by Bézier Curve Parameterizations in Evolutionary Bi-objective Optimization.	215
<i>Stefanus C. Maree, Tanja Alderliesten, and Peter A. N. Bosman</i>	
Many-Objective Test Database Generation for SQL.	229
<i>Zhilei Ren, Shaozheng Dong, Xiaochen Li, Zongzheng Chi, and He Jiang</i>	
A New Paradigm in Interactive Evolutionary Multiobjective Optimization . . .	243
<i>Bhupinder Singh Saini, Jussi Hakanen, and Kaisa Miettinen</i>	
Hypervolume Optimal μ -Distributions on Line-Based Pareto Fronts in Three Dimensions	257
<i>Ke Shang, Hisao Ishibuchi, Weiyu Chen, and Lukáš Adam</i>	
Adaptive Operator Selection Based on Dynamic Thompson Sampling for MOEA/D	271
<i>Lei Sun and Ke Li</i>	
A Study of Swarm Topologies and Their Influence on the Performance of Multi-Objective Particle Swarm Optimizers	285
<i>Diana Cristina Valencia-Rodríguez and Carlos A. Coello Coello</i>	

Visualising Evolution History in Multi- and Many-objective Optimisation . . .	299
<i>Mathew J. Walter, David J. Walker, and Matthew J. Craven</i>	
Improving Many-Objective Evolutionary Algorithms by Means of Edge-Rotated Cones	313
<i>Yali Wang, André Deutz, Thomas Bäck, and Michael Emmerich</i>	
Real-World Applications	
Human-Like Summaries from Heterogeneous and Time-Windowed Software Development Artefacts	329
<i>Mahfouth Alghamdi, Christoph Treude, and Markus Wagner</i>	
A Search for Additional Structure: The Case of Cryptographic S-boxes	343
<i>Claude Carlet, Marko Djurasevic, Domagoj Jakobovic, and Stjepan Picek</i>	
Evolutionary Multi-objective Design of SARS-CoV-2 Protease Inhibitor Candidates	357
<i>Tim Cofala, Lars Elend, Philip Mirbach, Jonas Prellberg, Thomas Teusch, and Oliver Kramer</i>	
Generic Relative Relations in Hierarchical Gene Expression Data Classification	372
<i>Marcin Czajkowski, Krzysztof Jurczuk, and Marek Kretowski</i>	
A Variable Neighborhood Search for the Job Sequencing with One Common and Multiple Secondary Resources Problem	385
<i>Thomas Kaufmann, Matthias Horn, and Günther R. Raidl</i>	
Evolutionary Graph-Based V+E Optimization for Protection Against Epidemics	399
<i>Krzysztof Michalak</i>	
Human-Derived Heuristic Enhancement of an Evolutionary Algorithm for the 2D Bin-Packing Problem	413
<i>Nicholas Ross, Ed Keedwell, and Dragan Savic</i>	
Towards Novel Meta-heuristic Algorithms for Dynamic Capacitated Arc Routing Problems	428
<i>Hao Tong, Leandro L. Minku, Stefan Menzel, Bernhard Sendhoff, and Xin Yao</i>	
Robust Evolutionary Bi-objective Optimization for Prostate Cancer Treatment with High-Dose-Rate Brachytherapy	441
<i>Marjolein C. van der Meer, Arjan Bel, Yury Niatetski, Tanja Alderliesten, Bradley R. Pieters, and Peter A. N. Bosman</i>	

A Hybrid Evolutionary Algorithm for Reliable Facility Location Problem . . .	454
<i>Han Zhang, Jialin Liu, and Xin Yao</i>	

Reinforcement Learning

Optimality-Based Analysis of XCSF Compaction in Discrete Reinforcement Learning.	471
<i>Jordan T. Bishop and Marcus Gallagher</i>	

Hybridizing the 1/5-th Success Rule with Q-Learning for Controlling the Mutation Rate of an Evolutionary Algorithm.	485
<i>Arina Buzdalova, Carola Doerr, and Anna Rodionova</i>	

Fitness Landscape Features and Reward Shaping in Reinforcement Learning Policy Spaces	500
<i>Nathaniel du Preez-Wilkinson and Marcus Gallagher</i>	

ClipUp: A Simple and Powerful Optimizer for Distribution-Based Policy Evolution.	515
<i>Nihat Engin Toklu, Paweł Liskowski, and Rupesh Kumar Srivastava</i>	

Warm-Start AlphaZero Self-play Search Enhancements	528
<i>Hui Wang, Mike Preuss, and Aske Plaatt</i>	

Theoretical Aspects of Nature-Inspired Optimization

Runtime Analysis of a Heavy-Tailed $(1 + (\lambda, \lambda))$ Genetic Algorithm on Jump Functions	545
<i>Denis Antipov and Benjamin Doerr</i>	

First Steps Towards a Runtime Analysis When Starting with a Good Solution	560
<i>Denis Antipov, Maxim Buzdalov, and Benjamin Doerr</i>	

Optimal Mutation Rates for the $(1 + \lambda)$ EA on OneMax	574
<i>Maxim Buzdalov and Carola Doerr</i>	

Maximizing Submodular or Monotone Functions Under Partition Matroid Constraints by Multi-objective Evolutionary Algorithms.	588
<i>Anh Viet Do and Frank Neumann</i>	

Lower Bounds for Non-elitist Evolutionary Algorithms via Negative Multiplicative Drift.	604
<i>Benjamin Doerr</i>	

Exponential Upper Bounds for the Runtime of Randomized Search Heuristics	619
<i>Benjamin Doerr</i>	
Analysis on the Efficiency of Multifactorial Evolutionary Algorithms	634
<i>Zhengxin Huang, Zefeng Chen, and Yuren Zhou</i>	
Improved Fixed-Budget Results via Drift Analysis	648
<i>Timo Kötzing and Carsten Witt</i>	
On Averaging the Best Samples in Evolutionary Computation	661
<i>Laurent Meunier, Yann Chevaleyre, Jeremy Rapin, Clément W. Royer, and Olivier Teytaud</i>	
Filter Sort Is $\Omega(N^3)$ in the Worst Case	675
<i>Sumit Mishra and Maxim Buzdalov</i>	
Approximation Speed-Up by Quadratization on LeadingOnes	686
<i>Andrew M. Sutton and Darrell Whitley</i>	
Benchmarking a $(\mu + \lambda)$ Genetic Algorithm with Configurable Crossover Probability	699
<i>Furong Ye, Hao Wang, Carola Doerr, and Thomas Bäck</i>	
Author Index	715

Contents – Part I

Automated Algorithm Selection and Configuration

Evolving Deep Forest with Automatic Feature Extraction for Image Classification Using Genetic Programming	3
<i>Ying Bi, Bing Xue, and Mengjie Zhang</i>	
Fast Perturbative Algorithm Configurators	19
<i>George T. Hall, Pietro S. Oliveto, and Dirk Sudholt</i>	
Dominance, Indicator and Decomposition Based Search for Multi-objective QAP: Landscape Analysis and Automated Algorithm Selection.	33
<i>Arnaud Liefooghe, Sébastien Verel, Bilel Derbel, Hernan Aguirre, and Kiyoshi Tanaka</i>	
Deep Learning as a Competitive Feature-Free Approach for Automated Algorithm Selection on the Traveling Salesperson Problem	48
<i>Moritz Seiler, Janina Pohl, Jakob Bossek, Pascal Kerschke, and Heike Trautmann</i>	
Automatic Configuration of a Multi-objective Local Search for Imbalanced Classification	65
<i>Sara Tari, Holger Hoos, Julie Jacques, Marie-Eléonore Kessaci, and Laetitia Jourdan</i>	

Bayesian- and Surrogate-Assisted Optimization

Multi-fidelity Optimization Approach Under Prior and Posterior Constraints and Its Application to Compliance Minimization.	81
<i>Youhei Akimoto, Naoki Sakamoto, and Makoto Ohtani</i>	
Model-Based Algorithm Configuration with Default-Guided Probabilistic Sampling	95
<i>Marie Anastacio and Holger Hoos</i>	
Evolving Sampling Strategies for One-Shot Optimization Tasks	111
<i>Jakob Bossek, Carola Doerr, Pascal Kerschke, Aneta Neumann, and Frank Neumann</i>	
A Surrogate-Assisted Evolutionary Algorithm with Random Feature Selection for Large-Scale Expensive Problems	125
<i>Guoxia Fu, Chaoli Sun, Ying Tan, Guochen Zhang, and Yaochu Jin</i>	

Designing Air Flow with Surrogate-Assisted Phenotypic Niching	140
<i>Alexander Hagg, Dominik Wilde, Alexander Asteroth, and Thomas Bäck</i>	
Variance Reduction for Better Sampling in Continuous Domains	154
<i>Laurent Meunier, Carola Doerr, Jeremy Rapin, and Olivier Teytaud</i>	
High Dimensional Bayesian Optimization Assisted by Principal Component Analysis.	169
<i>Elena Raponi, Hao Wang, Mariusz Bujny, Simonetta Boria, and Carola Doerr</i>	
Simple Surrogate Model Assisted Optimization with Covariance Matrix Adaptation.	184
<i>Lauchlan Toal and Dirk V. Arnold</i>	
Benchmarking and Performance Measures	
Proposal of a Realistic Many-Objective Test Suite.	201
<i>Weiyu Chen, Hisao Ishibuchi, and Ke Shang</i>	
Approximate Hypervolume Calculation with Guaranteed or Confidence Bounds	215
<i>A. Jaszkiewicz, R. Susmaga, and P. Zielniewicz</i>	
Can Compact Optimisation Algorithms Be Structurally Biased?	229
<i>Anna V. Kononova, Fabio Caraffini, Hao Wang, and Thomas Bäck</i>	
Parallelized Bayesian Optimization for Expensive Robot Controller Evolution	243
<i>Margarita Rebolledo, Frederik Rehbach, A. E. Eiben, and Thomas Bartz-Beielstein</i>	
Revisiting Population Models in Differential Evolution on a Limited Budget of Evaluations	257
<i>Ryoji Tanabe</i>	
Continuous Optimization Benchmarks by Simulation.	273
<i>Martin Zaefferer and Frederik Rehbach</i>	
Comparative Run-Time Performance of Evolutionary Algorithms on Multi-objective Interpolated Continuous Optimisation Problems	287
<i>Alexandru-Ciprian Zăvoianu, Benjamin Lacroix, and John McCall</i>	

Combinatorial Optimization

On the Design of a Partition Crossover for the Quadratic Assignment Problem.	303
<i>Omar Abdelkafi, Bilel Derbel, Arnaud Liefoghe, and Darrell Whitley</i>	
A Permutational Boltzmann Machine with Parallel Tempering for Solving Combinatorial Optimization Problems	317
<i>Mohammad Bagherbeik, Parastoo Ashtari, Seyed Farzad Mousavi, Kouichi Kanda, Hirotaka Tamura, and Ali Sheikholeslami</i>	
Solution Repair by Inequality Network Propagation in LocalSolver.	332
<i>Léa Blaise, Christian Artigues, and Thierry Benoist</i>	
Optimising Tours for the Weighted Traveling Salesperson Problem and the Traveling Thief Problem: A Structural Comparison of Solutions	346
<i>Jakob Bossek, Aneta Neumann, and Frank Neumann</i>	
Decentralized Combinatorial Optimization	360
<i>Lee A. Christie</i>	
PbO-CCSAT: Boosting Local Search for Satisfiability Using Programming by Optimisation	373
<i>Chuan Luo, Holger Hoos, and Shaowei Cai</i>	
Evaluation of a Permutation-Based Evolutionary Framework for Lyndon Factorizations	390
<i>Lily Major, Amanda Clare, Jacqueline W. Daykin, Benjamin Mora, Leonel Jose Peña Gamboa, and Christine Zarges</i>	
Optimising Monotone Chance-Constrained Submodular Functions Using Evolutionary Multi-objective Algorithms	404
<i>Aneta Neumann and Frank Neumann</i>	
Parameter-Less Population Pyramid for Permutation-Based Problems.	418
<i>Szymon Wozniak, Michal W. Przewozniczek, and Marcin M. Komarnicki</i>	

Connection Between Nature-Inspired Optimization and Artificial Intelligence

Biologically Plausible Learning of Text Representation with Spiking Neural Networks.	433
<i>Marcin Białas, Marcin Michał Mironczuk, and Jacek Mańdziuk</i>	
Multi-Objective Counterfactual Explanations	448
<i>Susanne Dandl, Christoph Molnar, Martin Binder, and Bernd Bischl</i>	

Multi-objective Magnitude-Based Pruning for Latency-Aware Deep Neural Network Compression	470
<i>Wenjing Hong, Peng Yang, Yiwen Wang, and Ke Tang</i>	
Network Representation Learning Based on Topological Structure and Vertex Attributes.	484
<i>Shengxiang Hu, Bofeng Zhang, Ying Lv, Furong Chang, and Zhuocheng Zhou</i>	
A Committee of Convolutional Neural Networks for Image Classification in the Concurrent Presence of Feature and Label Noise	498
<i>Stanisław Kaźmierczak and Jacek Mańdziuk</i>	
Improving Imbalanced Classification by Anomaly Detection.	512
<i>Jiawen Kong, Wojtek Kowalczyk, Stefan Menzel, and Thomas Bäck</i>	
BACS: A Thorough Study of Using Behavioral Sequences in ACS2.	524
<i>Romain Orhand, Anne Jeannin-Girardon, Pierre Parrend, and Pierre Collet</i>	
Nash Equilibrium as a Solution in Supervised Classification.	539
<i>Mihai-Alexandru Suciu and Rodica Ioana Lung</i>	
Analyzing the Components of Distributed Coevolutionary GAN Training.	552
<i>Jamal Toutouh, Erik Hemberg, and Una-May O'Reilly</i>	
Canonical Correlation Discriminative Learning for Domain Adaptation	567
<i>Wenjing Wang, Yuwu Lu, and Zhihui Lai</i>	
Genetic and Evolutionary Algorithms	
Improving Sampling in Evolution Strategies Through Mixture-Based Distributions Built from Past Problem Instances	583
<i>Stephen Friess, Peter Tiño, Stefan Menzel, Bernhard Sendhoff, and Xin Yao</i>	
The Hessian Estimation Evolution Strategy	597
<i>Tobias Glasmachers and Oswin Krause</i>	
Large Population Sizes and Crossover Help in Dynamic Environments	610
<i>Johannes Lengler and Jonas Meier</i>	
Neuromemetic Evolutionary Optimization	623
<i>Paweł Liskowski, Krzysztof Krawiec, and Nihat Engin Toklu</i>	
Evolved Gossip Contracts - A Framework for Designing Multi-agent Systems	637
<i>Nicola Mc Donnell, Enda Howley, and Jim Duggan</i>	

A SHADE-Based Algorithm for Large Scale Global Optimization.	650
<i>Oscar Pacheco-Del-Moral and Carlos A. Coello Coello</i>	
Evolutionary Algorithms with Self-adjusting Asymmetric Mutation	664
<i>Amirhossein Rajabi and Carsten Witt</i>	
Behavior Optimization in Large Distributed Systems Modeled by Cellular Automata	678
<i>Franciszek Seredyński and Jakub Gąsior</i>	
Learning Step-Size Adaptation in CMA-ES	691
<i>Gresa Shala, André Biedenkapp, Noor Awad, Steven Adriaensen, Marius Lindauer, and Frank Hutter</i>	
Sparse Inverse Covariance Learning for CMA-ES with Graphical Lasso	707
<i>Konstantinos Varelas, Anne Auger, and Nikolaus Hansen</i>	
Adaptive Stochastic Natural Gradient Method for Optimizing Functions with Low Effective Dimensionality	719
<i>Teppei Yamaguchi, Kento Uchida, and Shinichi Shirakawa</i>	
Author Index	733