

2015 Pattern Recognition Association of South Africa and Robotics and Mechatronics International Conference (PRASA-RobMech 2015)

**Port Elizabeth, South Africa
26 – 27 November 2015**



**IEEE Catalog Number: CFP1548U-POD
ISBN: 978-1-4673-7451-4**

**Copyright © 2015 by the Institute of Electrical and Electronic Engineers, Inc
All Rights Reserved**

Copyright and Reprint Permissions: Abstracting is permitted with credit to the source. Libraries are permitted to photocopy beyond the limit of U.S. copyright law for private use of patrons those articles in this volume that carry a code at the bottom of the first page, provided the per-copy fee indicated in the code is paid through Copyright Clearance Center, 222 Rosewood Drive, Danvers, MA 01923.

For other copying, reprint or republication permission, write to IEEE Copyrights Manager, IEEE Service Center, 445 Hoes Lane, Piscataway, NJ 08854. All rights reserved.

******This publication is a representation of what appears in the IEEE Digital Libraries. Some format issues inherent in the e-media version may also appear in this print version.***

IEEE Catalog Number:	CFP1548U-POD
ISBN (Print-On-Demand):	978-1-4673-7451-4

Additional Copies of This Publication Are Available From:

Curran Associates, Inc
57 Morehouse Lane
Red Hook, NY 12571 USA
Phone: (845) 758-0400
Fax: (845) 758-2633
E-mail: curran@proceedings.com
Web: www.proceedings.com

CURRAN ASSOCIATES INC.
proceedings
.com

LIST OF PAPERS

	TITLE	PAGE
1	Modelling of Boiler Fireside Control in Flownex Software Environment	1
2	Optimizing Search and Rescue Missions through a Cooperative Mobile Robot Network	7
3	Using the Earth Mover's Distance for Perceptually Meaningful Visual Saliency	12
4	Development of an Educational Tool to Teach Primary School Pupils Multiplication Tables	19
5	A study on the effect of different image centres on stereo triangulation accuracy	24
6	The effectiveness of combining the likelihood maps of different filters in improving detection of calcification objects	30
7	An Intelligent Locator Inventory to Accommodate Mass Customization in an Automated Flexible Fixture System	37
8	Using a Classifier to Track the Edge of a Conveyor Belt	42
9	Developing a Java based RFID application to automate student attendance monitoring	48
10	Normal Distribution Transform Graph-based Point Cloud Segmentation	54
11	Prototyping during the requirements elicitation process in the development of an underground unmanned aerial system	60
12	Single-labelled Music Genre Classification Using Content-Based Features	66
13	Self-Learning of Inverse Kinematics for Feedforward Control of Intracardiac Robotic Ablation Catheters	72
14	Sliding Mode Control for Electromagnetic Levitation System Based on Feedback Linearization	78
15	Navigation and locomotion of a low-cost Automated Guided Cart*	83
16	Creating a distortion characterisation dataset for visual band cameras using fiducial markers	89
17	Topic models for conference session assignment: Organising PRASA 2014(5)	94
18	Off-Road Vehicle Active Suspension Using Fluidic Muscle	100
19	Extracting South African safety and security incident patterns from social media	106
20	Using generalized maxout networks and phoneme mapping for low resource ASR– a case study on Flemish-Afrikaans	112
21	Synthetic triphones from trajectory-based feature distributions	118
22	Review of Standard Rotor Configurations for a Micro Unmanned Aerial System	123

23	High-level Rapid Prototyping of Graphical Models	130
24	Unsupervised acoustic model training: comparing South African English and isiZulu	136
25	Introducing XGL - a lexicalised probabilistic graphical lemmatiser for isiXhosa	142
26	BEETLE - A Modular Electronics Family for Robotics	148
27	Predicting vowel substitution in code-switched speech	154
28	Integration of an Electrical Discharge Machining Module onto a Reconfigurable Machine Tool*	160
29	Text-based Language Identification of Multilingual Names	166
30	A Local Planner for Ackermann-Driven Vehicles in ROS SBPL	172
31	HMM Adaptation for child speech synthesis using ASR data	178
32	Autonomous Prediction of Performance-based Standards for Heavy Vehicles	184
33	Rapid Prototyping of Small Wind Turbine Blades Using Additive Manufacturing	189
34	Gait Adaptation of a Six Legged Walker to Enable Gripping	195
35	Semi-supervised Spectral Connectivity Projection Pursuit	201
36	Face and Iris biometrics person identification using hybrid fusion at feature and score-level	207
37	Design of a Virtual Simulator for Transesophageal Echocardiography Remote Control	213
38	Emotional Feedback for Service Robots using Hapto-Acoustic Interface	219
39	Control Considerations of the Low Cost Prosthetic Touch Hand	225
40	Contrasting Classifiers for Software-based OMR Responses	233
41	Switching Cascade Controllers Combined with a Feedforward Regulation for an Aggregate Actuator in Automotive Applications	239
42	Arachnid-inspired Kinesthesia for Legged Robots	245
43	A straightforward method for calculating the voicing cut-off frequency for streaming HNM TTS	252
44	Validating a Reconfigurable Assembly System Utilizing Virtual Commissioning	258