



IVCNZ 2017 Programme

Co-located with ENZCon 2017



Monday 4th December

Time	Session	#	Paper title	Authors
8:30	IVCNZ Registration opens			
			IVCNZ and Plenary sessions are in C3	
9:20	Welcome			
9:30	Session 1		Motion and tracking	<i>Chair: Richard Green</i>
9:30		5	A Computationally Efficient Pipeline for Camera-based Indoor Person Tracking	Andrew Tzer-Yeu Chen, Jerry Fan, Morteza Biglari-Abhari and Kevin I-Kai Wang
9:50		18	Non-local Pose Means for Denoising Motion Capture Data	Christopher Dean and J.P. Lewis
10:10		64	Active Shift Attention Based Object Tracking System	Aisha Ajmal, Christopher Hollitt and Marcus Freat
10:30		26	3D Video-based Motion Capture using Convolutional Neural Networks	Huyuan Shangguan and Ramakrishnan Mukundan
10:50		61	Effect of Contextual Information on Object Tracking	Mohammad Hedayati, Michael Cree and Jonathan Scott
11:10	Morning Tea			
11:40	Session 2		Surface reconstruction and rendering	<i>Chair: Brendan McCane</i>
11:40		24	A Personalised Stereoscopic 3D Gallery with Virtual Reality Technology on Smartphone	Huy Tran, Minh Nguyen, Huy Le and Wei Qi Yan
12:00		45	Artistic Style Characterization and Brush Stroke Modelling for Non-Photorealistic Rendering	Tieta Putri, Ramakrishnan Mukundan and Kouros Neshatian
12:20		68	Multi-Scale Terrain Texturing using Generative Adversarial Networks	Jonathan Klein, Stefan Hartmann, Michael Weinmann and Dominik L. Michels
12:40		75	Surface Reconstruction of 3D Objects Using Local Moving Least Squares and K-D Trees	Yu-Mei Hong, Jia-Hong Zhang, Chia-Yen Chen, Hsiang-Jen Chien and Tang-Kai Yin
13:00	Lunch			
14:00	Session 3		Feature selection and classification I	<i>Chair: Steven Mills</i>
14:00	<i>Keynote</i>	1	Towards a Completely Blind Classifier for Hyperspectral Images	Pierre Hallé, Steven Le Moan and Claude Cariou
14:30		11	Fast Image Registration Using Cepstral Analysis of Inverted Gradient Distance Maps	Ruben Gonzalez
14:50		17	Model assisted bootstrapping for annotation of segmentation datasets	Oliver Batchelor and Richard Green
15:10		22	Comparison of Machine Learning-Based Feature Pooling Strategies for Colour Image Fidelity Assessment	Steven Le Moan and Donald Bailey
15:30	Posters 1 barking		<i>Brief 1-slide presentations by authors</i>	<i>See below for list of posters</i>

15:45	Aftern. Tea + Posters 1			
16:20	Session 4		Imaging and optical systems	<i>Chair: David Wojtas</i>
16:20		40	Wavefront Sensor Optimization with Ridgelets for Astronomical Image Restoration	Saloni Pal, Andrew Lambert, Richard Clare and Stephen Weddell
16:40		41	Wavefront Sensing with Prisms for Astronomical Imaging with Adaptive Optics	Byron Engler, Steve Weddell and Richard Clare
17:00		15	Lens Distortion Correction by Analysing Peak Shape in Hough Transform Space	Yuan Chang, Donald Bailey and Steven Le Moan
17:20		83	Accurate Calibration of Cameras with Large Optical Distortion	Trevor Gee, Heide Friedrich, Georgy Gimelfarb and Patrice Delmas
17:40	Programme finish			
18:30	Welcoming social event All are welcome	<p>NZ Robots, Automation and Sensing (NZRAS) AGM and Forum at the University of Canterbury Staff Club: www.staffclub.canterbury.ac.nz/contact.shtml (Includes free nibbles; and drinks can be purchased from the bar)</p> <p>18:30pm: Welcome: Bruce MacDonald chair NZRAS NZRAS AGM</p> <p>18:45pm: Industry Research forum: Brief reports from NZ industry representatives followed by discussion on priorities for RAS research and development (including intelligent robot vision) with a goal of generating project briefs</p> <ul style="list-style-type: none"> • Trimble • Scott Technology • Dynamic Controls • Invert Robotics • Hamilton Jet 		

Tuesday 5th December

	IVCNZ			
Time	Session	#	Paper title	Authors
8:30	Session 5		Imaging I <i>Chair: Phil Bones</i>	IVCNZ only (ENZCon Registration)
8:30	Keynote	51	Simultaneous retrieval of coherently illuminated defocused objects	Joe Chen and Rick Kirian
9:00		84	Orientation and analysis of XFEL serial diffraction patterns from fibrous molecular assemblies	David Wojtas, Kartik Ayyer, Mengning Liang, Estelle Mossou, Carolin Seuring, V. Trevor Forsyth, Henry Chapman and Rick Millane
9:20		85	Phase retrieval for 1D and 2D crystals	Romain Arnal and Rick Millane
9:40	Morning Tea			
10:20	Session 6		IVCNZ/ENZCon Plenary I	<i>Chair: Michael Hayes</i>
10:20	Keynote	EC-14	Continuous Calibration of the Transient Array Radio Telescope using Satellites	Tim Molteno, Maximilian Scheel and Colin Fox
10:50		43	Streamed Hough Transform and Line Reconstruction on FPGA	Donald Bailey
11:10		52	Simulating Neuromorphic Reservoir Computing: Abstract Feed-forward Hardware Models	Aaron Stockdill and Kourosh Neshatian
11:30		25	Increasing the Accuracy of Convolutional Neural Networks with Progressive Reinitialisation	Craig Atkinson, Brendan McCane and Lech Szymanski
11:50		EC-8	Optimising electrical circuits with a dual-objective evolutionary algorithm	George Chisholm, Jérôme Leveneur and John Kennedy
12:10	Lunch			
13:20	Session 7		Imaging applications	<i>Chair: Patrice Delmas</i>
13:20	Keynote	31	Photogrammetric Debitage Analysis: Measuring Māori Toolmaking Evidence	Steven Mills, Hamza Bennani, Richard Walter and Karen Greig
13:50		82	A multi-scale framework for the automated surveying of the Whangateau estuary using off-the-shelf equipment	Arabella Anderson, Mihailo Azhar, James Cooper, et al.
14:10		38	Towards Generalised Time-of-Flight Range Imaging at the Edge of Moving Objects	Lee Streeter
14:30	Posters 2 barking		<i>Brief 1-slide presentations by authors</i>	<i>See below for list of posters</i>
14:45	Aftern. Tea + Posters 2			

15:40	Session 8		Imaging II	<i>Chair: Rick Millane</i>
15:40		63	Adaptive Block Compressive Sensing for Image Compression	Casey Hubbard-Featherstone, Mark Garcia and William Lee
16:00		67	Statistical Lower Bound for Variance of Checkerboard Pose Estimate	Matthew Edwards, Michael Hayes and Richard Green
16:20		86	SIFT Localization Accuracy on Interpolated Speckle Images	Victor Wang and Michael Hayes
16:40		87	Quality Analysis Of Synthetic Ultrasound Images Using Second Order Statistical Features	Perna Singh, Ramakrishnan Mukundan and Rex De Ryke
17:00	Finish of session			
18:20 or 18:30	Bus to dinner from campus	<p>Tuesday evening – Conference Dinner</p> <p>Buses to the Conference Dinner leave from:</p> <p style="padding-left: 40px;">University Halls (Maidstone Road entrance) at 18:20</p> <p style="padding-left: 40px;">Academy Motor Lodge (Creyke Road) at 18:20</p> <p style="padding-left: 40px;">Arts Rd/Forestry Rd corner (closest road 40 m east of conference venue) at 18:30</p> <p style="padding-left: 80px;"><i>(Refer to the campus map on the IVCNZ website under Venue)</i></p> <p>The dinner is in the Camelot Room, Chateau on the Park, Kilmarnock Street.</p> <p>Guests are welcome to arrive from 6:30 p.m. Entry is by conference name badge (registrants) or Dinner Ticket (other guests). A limited number of tickets for non-registrants can be purchased for \$80 from the Registration desk.</p> <p>Buses will leave the dinner venue to return diners to their pick-up points at ~ 22:30.</p>		
	Conference dinner			

Wednesday 6th December

Time	Session	#	Paper title	Authors
9:00	Session 9 Plenary		IVCNZ/ENZCon Plenary II	<i>Chair: Steve Weddell</i>
9:00		EC-17	Resolving the Over-Estimation of Time-of-Flight Stiffness Measurements in Standing Trees Through Dispersion Models	Michael Frampton and Michael Hayes
9:20		EC-9	Using Audio Onset Detection Algorithms	Diana Siwiak, Dale A. Carnegie and Jim Murphy
9:40		EC-3	Bayes-Optimal Filtering for Dynamical Systeems	Colin Fox, Malcolm Morrison and Timothy Molteno
10:00		EC-20	Mastering the Labyrinth: Controlling the position and velocity of a ball on a tilting table	Blair Bonnett and William Kamp
10:20	Posters 3 barking		<i>Brief 1-slide presentations by authors</i>	<i>See below for list of posters</i>
10:35	Morn. Tea + Posters 3			

11:10	Session 10		Traffic and vehicles	<i>Chair: Don Bailey</i>
11:10	<i>Keynote</i>	12	Stixel Optimization: Representing Challenging On-Road Scenes	Noor Haitham Saleem, Hsiang-Jen Chien and Reinhard Klette
11:40		13	Deep Actionlet Proposals for Driver's Behavior Monitoring	Anwaar Ulhaq
12:00		35	Traffic Intersection Monitoring Using Fusion of GMM-based Deep Learning Classification and Geometric Warping	Zahra Moayed, Anthony Griffin and Reinhard Klette
12:20		36	A Multi Sensory Approach Using Error Bounds For Improved Visual Odometry	Ori Ganoni, Ramakrishnan Mukundan and Richard Green
12:40		57	Utility pole extraction using vehicle-mounted LIDAR for dynamic line rating	Joshua Mcculloch and Richard Green
13:00	Lunch			
14:00	Session 11		Feature selection and classification II	<i>Chair: Phil Bones</i>
14:00		23	CNN-based small object detection and visualization with feature activation map	Medhani Menikdiwela, Chuong Nguyen and Hongdong Li
14:20		29	CNN for Historic Handwritten Document Search	Lech Szymanski and Steven Mills
14:40		46	Ensemble Classifier with Dividing Training Scheme for Chinese Scene Character Recognition	Long Jiang and Hideaki Goto
15:00		60	Adaptive Sampling Positions for the Decoding of Marker Objects known as "Snowflakes"	Litong Zhang, Martin Stommel, Stephen Henry and Eleanor Williams
15:20	Closing & prizegiving			

Posters 1 Monday

	Paper title	Authors
#		
02	A Virtual Keyboard Implementation Based on Finger Recognition	Yang Zhang, Weiqi Yan and Ajit Narayanan
06	Image Encryption Based on Double Random Phase Encoding	Zhe Liu, Mee Loong Yang and Weiqi Yan
07	Offline Automatic Actor Tracking in a Movie	Chih-Yang Lin, Hong-Xia Xie, Shang-Ming Wang, Pin-Ming Su and Wen-Thong Chang
16	Methods and Apparatus for Tracking Internal Structures in Soft Objects: A Phantom-based Study	Haobo Yu and Harvey Ho
21	Of Mice, Men, and Machines: Real and Artificial Deep Networks for Vision	Joseph Cahill-Lane and Steven Mills
28	Substantial Improvement of Stereo Visual Odometry by Multi-path Feature Tracking	Hsiang-Jen Chien and Reinhard Klette
30	A performance evaluation method for infrared tracker	Haichao Zheng and Jie Yang
66	Extracting Descriptive Motion Information from Crowd Scenes	Muhammad Saqib, Sultan Daud Khan, Nabin Sharma and Michael Blumenstein
74	Pedestrian Avoidance in Construction Sites	Josh Nimmo and Richard Green
88	Sensitivity analysis of multirotor position control	Sam Schofield, Matthew Edwards and Richard Green

Posters 2 Tuesday

08	Image Phylogeny for Simulating Multiple Print-Scan	Abhimanyu Singh Garhwal and Wei Qi Yan
27	Road surface distress detection in disparity space	Amita Dhiman, Hsiang-Jen Chien and Reinhard Klette
34	Fast Local Binary Pattern: Application to Document Image Retrieval	Fahimeh Alaei, Alireza Alaei, Umapada Pal and Michael Blumenstein
37	Adaptive Control of the Colour Rendering of LED Lighting with an RGBW Sensor	Daniel de Waal, Steven Le Moan and Huub Bakker
42	An Efficient Ward-Based Copy-Move Forgery Detection Method for Digital Image Forensic	Sajjad Dadkhah, Mario Koeppen, Somayeh Sadeghi, Kaori Yoshida, Hamid Jalab and Azizah Abd Manaf
49	A comparison between end-to-end approaches and feature extraction based approaches for Sign Language recognition	Marlon Oliveira, Houssein Chatbri, Suzanne Little, Noel E. O'Connor and Alistair Sutherland
50	A Review of Sensor Devices in Stroke Rehabilitation	Marylyn Alex, Chen Chia-Yen and Burkhard Wuensche
56	Challenges and Limitations of Image-based 3D Vision Systems in an Agricultural Context	Abhipray Paturkar, Gourab Sen Gupta and Donald Bailey
77	Robust Fingerprint Verification for Enhancing Security in Healthcare System	Sharmin Jahan, Mozammel Chowdhury and Rafiqul Islam
78	On the Suitability of Different Probability Distributions for the Task of Image Segmentation	Thorsten Wilhelm and Christian Wöhler
81	Automated Kauri Tree Detection in Aerial Images	Li Tze Han, Trevor Gee and Patrice Delmas

Posters 3 Wednesday

39	An Automatic Region Detection and Processing Approach in Genetic Programming for Binary Image Classification	Ying Bi, Mengjie Zhang and Bing Xue
44	Digital Map using Augmented Reality on Smart Devices: Motivation, Design, and Implementation	Lei Qiu, Minh Nguyen, Huy Le, Huy Tran and Wei Qi Yan
47	A Precise Human Detection Model Using the Feature Extraction Technique in a Dynamic Environment	Arwa Alzughaihi and Zenon Chaczko
58	Back To RGB: Deep Articulated Hand Pose Estimation From a Single Camera Image	Wan-Duo Ma, J.P. Lewis, Marcus Frean and David Balduzzi
62	Finding Learned obstacles to avoid collisions in autonomous robotic navigation	Angel Sanchez Garcia, Homero Vladimir Rios, Antonio Marin-Hernandez, Ericka Rechy Ramirez and David Oliva Uribe
65	Can Image Quality Features Predict Visual Change Blindness?	Steven Le Moan
70	Fast Automatic Segmentation of Cells and Nucleuses in Large-Scale Liquid-Based Monolayer Smear Images	Jia-Hong Zhang, Yan-Jun Chen, Yu-Fen Kuo and Chia-Yen Chen
72	Model and Feature Selection for the Classification of Dark Field Pollen Images Using the Classifynder System	Ben Pedersen, Donald Bailey and Bob Hodgson
76	Pincode detection using Deep CNN for Postal Automation	Nabin Sharma, Abira Sengupta, Rabi Sharma, Umapada Pal and Michael Blumenstein