

Computing News round-up – May-June 2015

Our first departmental **RA Symposium** took place on Thursday 11 June and was a great success - the breadth of the research and presentations was impressive. Thanks to all the RAs who chose to make time to present their work, the Department certainly plan to repeat the event next academic year.

The Best Presentation Prize was given to **Thomas Whelan** for his talk "ElasticFusion: Dense SLAM without a Pose Graph". Congratulations to Thomas, and many thanks to Andrea Gaglione, Layal Hakim, Alireza Tamaddon-Nezhad, and Sarah Willis who organized the event. Thanks also to the local ACM Student Chapter and Alex Wolf for making the keynote speaker, Guido Van Rossum, possible.

Top journals, conference papers and publications

The **BioMedIA group** has 8 papers accepted at MICCAI 2015 (the top conference in medical image computing):

- Flexible reconstruction and correction of unpredictable motion from stacks of 2D images – B. Kainz, A. Alansary, C. Malamateniou, K. Keraudren, M. Rutherford, J. V. Hajnal, D. Rueckert
- Multi-Level Parcellation of the Cerebral Cortex Using Resting-State fMRI – S. Arslan and D. Rueckert
- Automated Localization of Fetal Organs in MRI Using Random Forests with Steerable Features – K. Keraudren, B. Kainz, O. Oktay, V. Kyriakopoulou, M. Rutherford, J. V. Hajnal and D. Rueckert
- Prospective Identification of CRT Super Responders Using a Motion Atlas and Random Projection Ensemble Learning – D. Peressutti, W. Bai, T. Jackson, M. Sohal, A. Rinaldi, D. Rueckert and A. King
- Fast reconstruction of accelerated dynamic MRI using manifold kernel regression – K. Bhatia, J. Caballero, A. Price, Y. Sun, J. V. Hajnal and D. Rueckert
- Structured Decision Forests For Multi-modal Ultrasound Image Registration – O. Oktay, A. Schuh, M. Rajchl, K. Keraudren, A. Gomez, M. P. Heinrich, G. Penney and D. Rueckert
- A Continuous Flow-Maximisation Approach to Connectivity-driven Cortical Parcellation – S. Parisot, M. Rajchl, J. Passerat-Palmbach and D. Rueckert
- Identification of Cerebral Small Vessel Disease Using Multiple Instance Learning – L. Chen, T. Tong, C. P. Ho, R. Patel, D. Cohen, A. Dawson, O. Halse, O. Geraghty, P. Rinne, C. White, T. Nakornchai, P. Bentley and D. Rueckert

Paolo Costa, Hitesh Ballani, Kaveh Razavi, and Ian Kash. *R2C2: A Network Stack for Rack-scale Computers*

Hitesh Ballani, **Paolo Costa**, Christos Gkantsidis, Matthew P. Grosvenor, Thomas Karagiannis, Lazaros Koromilas, and Greg O'Shea. *Enabling End Host Network Functions*

M P Deisenroth and JW Ng, *Distributed Gaussian Processes*, International Conference on Machine Learning (ICML)

Koki Nagano, Graham Fyffe, Oleg Alexander, Jernej Barbic, Hao Li, **Abhijeet Ghosh**, Paul Debevec. *Skin Microstructure Deformation with Displacement Map Convolution*, ACM Trans. on Graphics (Proc. SIGGRAPH), 2015 (to appear).

Eleni Tzirita Zacharatou, **Thomas Heinis**, Farhan Tauheed, Anastasia Ailamaki, 'Efficient Threshold Queries on Massive Time Series', International Conference on Scientific and Statistical Database Management (SSDBM 2015): RUBIK

A. Lomuscio, H. Qu, F. Raimondi MCMAS: An Open-Source Model Checker for the Verification of Multi-Agent Systems. International Journal on Software Tools for Technology Transfer. DOI: 10.1007/s10009-015-0378-x.

Mark Law, **Alessandra Russo** and Krysia Broda, "Learning Weak Constraints in Answer Set Programming", ICLP 2015

Y Gao and **F Toni**: Potential Based Reward Shaping for Hierarchical Reinforcement Learning, accepted paper at IJCAI 2015 (top AI conference), Machine Learning Track

Funding success

Dalal Alrajeh has recently received funding as a Co-I from The Minerva Research Initiative (a US funding programme) on the project "The Social Ecology of Radicalization: A Foundation for the Design of CVE Initiatives and Their Evaluation". The success rate this year was only 3%.

Panos Parpas and **Ruth Misener** are on a grant that was recently funded by the EPSRC; Prof Lazaros Papageorgiou from UCL is PI on the grant and Panos is PI from Imperial. Ruth is co-I as is Dr Wolfram Wiesemann (former member of DoC now in the Business School). The grant will fund a new DoC postdoc for about 3 years.

Ruth Misener is also co-I on a recent grant recently funded by an ERC Marie Curie ITN; the grant will fund a new DoC PhD student. Ruth's collaborator, Prof Sakis Mantalaris, Department of Chemical Engineering, is coordinator.

Awards

Cristian Cadar was awarded the Jochen Liedtke Young Researcher Award at the 2015 Eurosys ACM SIGOPS European Conference. This is given annually to a researcher who contributes to advancement in all areas of computer science directly related to, or having an impact on, the development, design, architecture, deployment and operation of software and hardware systems.

David Ham has won the Wilkinson Prize for Numerical Software 2015 for his work on the 'Dolphin-adjoint' project. The Wilkinson Prize was established to honour the outstanding contributions of Dr. James Hardy Wilkinson to the field of numerical software. It is awarded every four years to the entry that best addresses all phases of the preparation of numerical software at the International Congress on Industrial and Applied Mathematics by Argonne National Laboratory, the National Physical Laboratory and the Numerical Algorithms Group. The prize will be presented at ICIAM 2015 in Beijing and will consist of \$3000 plus a commemorative plaque for each winner.

Bjoern Schuller has been selected as a Young Scientist ("40 extraordinary scientists under the age of 40") by the World Economic Forum and received an exclusive invitation to this year's Annual New Champions meeting in DaLian, China in September, alongside leading figures in business and politics.

Demonstrations, seminars and key note talks

Marc Deisenroth was the Key Note Speaker at the 2015 Sloan Summit (at London Business School). <http://www.lbssloansummit2015.com/>

Marc Deisenroth will be giving tutorials at Gaussian Process Summer School <http://gpss.cc/gpss15/> Gaussian Process Workshop for Global Optimization <http://gpss.cc/gppo15/>

Jiefei Ma and **Ben Glocker** demonstrated their work on Medical Augmented Reality at the 2015 Imperial Festival (<https://youtu.be/TD9aZcPaCQU>)

Jeff Kramer gave a keynote lecture at the 10th ACM/IEEE Symposium on Software Engineering for Adaptive and Self-Managing Systems ([SEAMS 2015](#)), Florence, May 2015.

Luigi Nardi is invited to give talks at the European Centre for Medium-Range Weather Forecasts (ECMWF) and IBM T.J. Watson this month.

Alessandra Russo, presented a keynote at the 10th NII International Workshop on Software Engineering and Adaptive Systems”, 8-10 April 2015, Turin, Italy. The title of her talk was “Learning Software Models”.

ARM demonstrated the SLAMBench framework (<http://apt.cs.manchester.ac.uk/projects/PAMELA/tools/SLAMBench/>) at the Embedded Vision Summit in Santa Clara, California (<http://www.embedded-vision.com/summit/may2015/overview>). The SLAMBench framework is a joint effort of Dr. Luigi Nardi, Dr. Zeeshan Zia, Emanuele Vespa, Prof. Paul Kelly, Prof. Andrew Davison and Dr David Ham collaborating in the EPSRC funded PAMELA project. SLAMBench features in the HiPEAC newsletter (number 41 at page 11): <https://www.hipeac.org/publications/newsletter/>

Major committee/advisory board memberships

Cristian Cadar and **Peter Pietzuch** will be the General co-chairs for the ACM European Conference on Computer Systems (EuroSys), which will take place at Imperial College from April 18-21, 2016.

Giuliano Casale has been elected to the Board of Directors of ACM SIGMETRICS, the special interest group for the computer systems performance evaluation community.

Ben Glocker is co-chair of the upcoming Symposium on Clinical Applications of Machine Learning in Neuroimaging held in conjunction with the 2015 International Conference on Brain Informatics & Health, 30 August - 2 September, London, UK (<http://www.c3nl.com/events/bih2015/>)

Alessio Lomuscio is serving as PC Member for the 12th International Conference on Service Oriented Computing (ICSOC2015) to be held in India in November 2015.

Alessandra Russo will act as a PC Member for the 24th ACM SIGSOFT International Symposium on the Foundations of Software Engineering, Seattle, 2016.

Forthcoming events

Dalal Alrajeh, Catarina Fernandes and Anandha Gopalan have organized the first school visit **Outreach Event** that will be hosted in the Department. The event will take place on 7th July. Year 8 students from a local preparatory school will be taking part in a morning of demonstrations and talks from Andrew Davidson, Paul Kelly, Julie McCann, Jiefei Ma and Daniel Rueckert followed by a lab session on python programming with Dalal Alrajeh.

The BioMedIA group have organised a tutorial on a tool called **OpenMOLE** on 8th July in LT 140, Department of Computing. All are welcome and the registration information can be found here: <http://biomedic.doc.ic.ac.uk/events/>

Sarah Parisot, Emma Robinson and Jonathan Passerat-Palmbach from Daniel Rueckert's BioMedia group are organising a symposium on the 30th August entitled: "**Symposium on Big Data Initiatives for Connectomics Research**", as part of the Brain Informatics & Health conference (<http://braininformatics.london/>) being held at Imperial College. This symposium intends to bring together researchers with an interest in informatics challenges related to the storage, processing and diffusion of large brain images datasets. More information regarding the symposium can be found on the dedicated website: <http://biomedic.doc.ic.ac.uk/bih-symposium>

Autumn Term dates for the **Machine Learning Tutorial Series** in the Department: 21 and 28 October, 11 and 25 November.

Fellowships

Dr Ioana Boureanu-Carlson (a PhD Student in the Department between 2007 and 2010) was awarded an EU H2020 Marie Curie Fellowship to work in Alessio Lomuscio on verification of privacy properties in networked applications. Ioana will rejoin the Department in June 2015.

Student achievements

Congratulations to **Claudia Schulz** (supervised by Francesca Toni and Marek Sergot) who has been selected for the third Heidelberg Laureate Forum. Only the 200 most qualified young Researchers worldwide are granted the opportunity to experience the unique atmosphere of the Heidelberg Laureate Forum.

Claudia has also won the BEST GRADUATE TEACHING ASSISTANT (2015 Student Academic Choice Awards (SACAs)), see <https://www.imperialcollegeunion.org/news/and-2015-saca-winners-are>

Alumni success

Ex DoC PhD students from the Robotics Vision Group, **Renato Salas-Moreno**, **Richard Newcombe** and **Steven Lovegrove**, have had the computer vision company they founded, Surreal Vision, acquired by Facebook to be part of the Oculus team working on virtual and augmented reality (<https://www.oculus.com/blog/announcing-the-acquisition-of-surreal-vision/> and <http://surreal.vision/>). Andy Davison and Paul Kelly were advisors to the company before the buy-out. Renato was co-supervised by Andy and Paul. Richard was co-supervised by Andy and Murray Shanahan and Steve was supervised by Andy.

Avocarrot (from EF's first cohort), and a team of Imperial alumni including Computing alumni **Emilios Nicolaou**, have just raised \$2m! You can read more here: <http://venturebeat.com/2015/05/19/avocarrot-takes-2m-on-its-march-to-become-the-mopub-for-native-mobile-ads/>.