2019 年物联网与边缘智能论坛

程 序 册

主办单位： 安徽省物联网安全技术工程实验室
安徽省计算机学会

承办单位： 安徽大学计算机科学与技术学院

安徽 合肥

2019 年 12 月 21-22 日

2019 年物联网与边缘智能论坛日程安排

会议时间：2019 年 12 月 21 日—12 月 22 日

会议地点：安徽大学磬苑校区理工 D 楼 318 会议室

主办单位：安徽省物联网安全技术工程实验室

安徽省计算机学会

承办单位：安徽大学计算机科学与技术学院

会议日程：

	时间	议程			主持人
12 月 21 日上午		报 到 （安徽大学磬苑校区）			
12 月 21 日下午	**论坛专题报告（理工 D 楼 318 会议室）**				
	时间	报告人		报告题目	
	14:00-14:40	刘路 教授（英国莱斯特大学）		A Data-Driven Model for Managing Information Services in the Internet of Things	仲红教授
	14:40-15:20	闵革勇 教授（英国埃克塞特大学）		Smart Network and Cloud Management	
	15:20-15:40	茶歇			
	15:40-16:20	**Ovidiu Bagdasar** 博士（英国德比大学）		On the design and correction of ceramic colors: a mathematical perspective	
	16:20-17:00	翟晓君 博士（英国埃塞克斯大学）		Embedded and Intelligent Systems: from Embedded SoCs to Nuclear Robotics	
	17:00-17:40	**John Panneerselvam** 博士（英国德比大学）		Fog Computing for Next Generation Internet of Things- Opportunities and Challenges	
12 月 22 日	全天	自由讨论、实验室参观			

论坛报告 1

题 目： **A Data-Driven Model for Managing Information Services in the Internet of Things**

报告人： **Professor Lu Liu (University of Leicester)**

摘 要： Given the recent proliferation in the number of smart devices connected to the Internet, the era of Internet of Things (IoT) is challenged with massive amounts of data generation and service provision. Efficient management of information services is one of the prevailing challenges in the era of IoT and Big Data. To address this challenge, Professor Liu will introduce his recent research work on data-driven service computing for IoT with the process of how to adaptively index services, how to efficiently discover services, how to securely request services and finally dependably integrate services in a dynamic IoT environment. Professor Liu will further present his work on data-driven service development for engineering data analytics, social data analytics, workload data analytics and commercial data analytics.
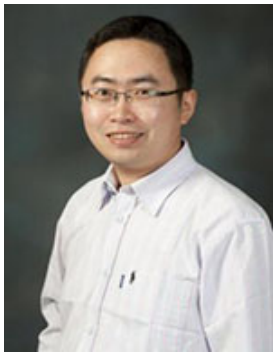
报告人简介： Professor Lu Liu is the Head of School of Informatics at the University of Leicester, UK. Professor Liu received his PhD degree from Surrey Space Centre at the University of Surrey, UK. Professor Liu's research interests are in the areas of data analytics, service computing, cloud computing and the Internet of Things. He has over 200 scientific publications in reputable journals, academic books and international conferences. Professor Liu has secured many research projects which are supported by research councils, BIS, Innovate UK, British Council and leading industries. He received the Vice-Chancellor's Awards for Excellence in Doctoral Supervision in 2018, BCL Faculty Research Award in 2012 and the Promising Researcher Award in 2011. He has been the recipient of 6 Best Paper Awards from international conferences and was invited to deliver 7 keynote speeches at international conferences. Professor Liu is a Fellow of BCS (British Computer Society) and currently serve as an Editorial Board member of 6 international journals and the Guest Editor for 17 international journals. He has chaired over 30 international conference and workshops, and presently or formerly serves as the program committee member for over 60 international conferences and workshops.

论坛报告 2

题　目：Smart Network and Cloud Management

报告人：Professor Geyong Min (University of Exeter)

摘　要： Aiming at achieving high performance and availability of Cloud computing and networking systems, our vision is to conduct efficient data analysis in order to dig valuable knowledge and actionable insights hidden in network big data for improving the design, operation, and management of Cloud and networks. This talk will present the innovative big data modelling and processing technologies, real-time incremental data analysis tools, and a cost-effective distributed platform we have recently developed to support better decision-making for system design, anomaly detection, resource management and optimization. This talk offers the theoretical underpinning for efficient processing of big data, and also opens up a new horizon of research and development by exploiting the key intelligence and insights hidden in content-rich big data for the design and improvement of Cloud computing and networking systems.

报告人简介： Professor Geyong Min is a Chair in High Performance Computing and Networking and the Academic Lead of Computer Science in the College of Engineering, Mathematics and Physical Sciences at the University of Exeter, UK. His recent research has been supported by European Horizon-2020, FP6/FP7, UK EPSRC, Royal Society, Royal Academy of Engineering, and industrial partners including British Telecom, Huawei Technologies, IBM, INMARSAT, Motorola, and InforSense Ltd. He has published more than 200 research papers in leading international journals including IEEE/ACM Transactions on Networking, IEEE Journal on Selected Areas in Communications, IEEE Transactions on Computers, IEEE Transactions on Parallel and Distributed Systems, IEEE Transactions on Communications, and IEEE Transactions on Wireless Communications, and at reputable international conferences, such as SIGCOMM-IMC, INFOCOM, and ICDCS. He is an Associated Editor of several international journals, e.g., IEEE Transactions on Computers, and IEEE Transactions on Cloud Computing. He served as the General Chair/Program Chair of a number of international conferences in the area of Information and Communications Technologies.

论坛报告 3

题　目：On the design and correction of ceramic colors: a mathematical perspective

报告人：Dr. Ovidiu Bagdasar

摘　要：This talk addresses two major problems within the ceramics industry. The reproduction of a desired color from pigments (which is time-intensive), and the correction of colors on the production line (which is costly) are processes which still rely heavily on numerous experiments carried out by human operators. This study presents the key aspects of these two processes and suggests some mathematical and computer sciences tools, aimed at automatizing the current procedures. Data was provided by an industrial partner, where the proposed models and solutions will be tested and validated.

报告人简介：Ovidiu Bagdasar is Programme Leader for MSc Computational Mathematics, MSc Big Data Analytics and Departmental Coordinator for Mathematics and Computing for Erasmus+. He has been Placement Tutor for Mathematics students since 2012 and he is the International Recruitment Tutor for Mathematics programs and MSc Big Data. He is also Outreach Coordinator for Mathematics, selecting and training students for outreach activities. He hold BSc (2006), MSc (2007) Mathematics from UBB Cluj (Romania), PhD in Applied Mathematics in 2011 (EST Marie Curie Fellow, Nottingham) and PhD in Pure Mathematics in 2015 (UBB Cluj). He joined the University of Derby (UoD) in 2012 as a Lecturer in Mathematics when He became a member of IMA and Fellow of the HEA. In 2015, he became Senior Lecturer in Mathematics and Erasmus Departmental Coordinator for Mathematics and Computing. Since 2016 I involved students in URSS, Erasmus and research. Ovidiu Bagdasar is a member of the International Society for Difference Equations (2017-), American Mathematical Society (2014-), Romanian Mathematical Society (2013-) and the Marie Curie Alumni Network (2011-). He is an active member of the newly established Research Centre in Data Science at the University of Derby.

论坛报告 4

题 目：Embedded and Intelligent Systems: from Embedded SoCs to Nuclear Robotics

报告人：翟晓君 博士 (英国埃塞克斯大学)

摘 要： When electronic systems are working in radiation environments, transient errors and permanent errors may occur. Static random-access memory (SRAM) has been the one of most significant parts in various semiconductor chips for its' high performance and high logic density features. However, because of their dedicated electronic circuits, SRAMs are sensitive to radiation effects. In this word, a portable scheme combined with error correcting code (ECC) and refreshing techniques is proposed to correct errors and mitigate error accumulation in extreme radiation environments. These circuits are small and transparent to other modules, which means that original data flow will not be affected and so can be easily integrated in various RAM systems, especially in costs sensitive systems without dedicated components. We evaluated this design by simulation in a hardware fault injection platform and radiation experiments in the Neutron radiation facility. The hardware and software co-simulation shows that the proposed design can handle more than 99.9 % and 99.97% of bit flips, while the SEU rates are 1×105 bit/s and 6.25×104 bit/s respectively. The results obtained in Neutron experiment, where the flux of Neutron particles is 5×10^6 cm2s-1, show that the number of bit-flips in 32 KB self-refresh ECC RAM on the Xilinx Artix-7 FPGA remains 0 while the number of bit-flips in unhardened RAM rise to 32 in 1.5 hours. This efficient systems adds only a cost of less than 1% of total available LUTs and the additional power consumption is limited to 0.014W.

报告人简介： 翟晓君，现为英国埃塞克斯大学（University of Essex）计算机与电子工程系助理教授，博士生导师，同时兼任卡塔尔大学高级研究顾问。2013 年获得英国赫特福德大学电气电子工程哲学博士(PhD)，2013-2015 年分别在英国埃塞克斯大学和莱斯特大学从事博士后研究工作。2015-2018 年在英国德比大学工程与技术学院高级讲师。研究方向主要是：嵌入式智能系统，物联网，物联网医疗，异构式嵌入式系统，可编程逻辑阵列，高性能嵌入式信号处理系统的设计与实现。担任英国高等教育学会会士，英国计算机协会（BCS）会员。在多个国际刊物的客座编辑与特约审稿人。目前已发表学术论文 60 余篇，其中被 SCI 收录 20 余篇。 在近些年的研究工作中，多次组织并担任国际学术会议重要职务，并参与完成了多个国际合作的大型研究项目。

论坛报告 5

题 目：Fog Computing for Next Generation Internet of Things-Opportunities and Challenges

报告人：Dr. John Panneerselvam (University of Derby)

摘 要： Internet of Things (IoT) is on the raise and has become an integral part of our daily activities. Cloud Computing has been serving as an effective platform to IoT application that host data execution at the back-end server at the datacentres. The extent of IoT to mission critical delay intolerant applications require immediate responses from the providers. While the traditional Cloud infrastructure incurs unavoidable process delays, Fog Computing can effectively mitigate such delays to serve latency sensitive applications with reduced energy consumption. However, the success of the Fog architecture relies on effective data management both during transmission and execution. To this end, this talk discusses the advantages of Fog computing over Clouds in addressing energy and time constraints of IoT application, uncovers the challenges faced by data aggregation in Fog computing. Further this talk presents an overview of the data aggregation strategies towards developing a recommended hybrid data aggregation scheme for Fog based IoT applications.

报告人简介： Dr John Panneerselvam is a lecturer in Computing within the Department of Electronics, Computing and Mathematics at the University of Derby. He received my PhD degree in the discipline of Computing and I have an MSc in Advanced Computer Networks from the University of Derby. He is an active researcher and have collaborated with several research groups across the globe, Jiangsu University, Tongji University and Anhui University of China, Sathyabama Institute of Science and Technology, India, to name a few. He has generated various forms of research outputs in the fields of Cloud Computing, Peer-to-Peer Computing, Internet of Things, Big Data Analytics, Wireless Sensor Networks, Network Security and Opportunistic Networking.

Link to University Staff Profile: https://www.derby.ac.uk/staff/john-panneerselvam/