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## **Education**

PhD, Carnegie Mellon University, United States of America, 2006  
Master of Science, National University of Singapore, Singapore, 2000  
Bachelor of Science, National University of Singapore, Singapore, 1998

## **Academic Appointments**

Associate Professor of Information Systems, School of Information Systems, SMU, Jul 2013 - Present  
Assistant Professor of Information Systems, School of Information Systems, SMU, Jul 2006 - Jun 2013

## **Academic Administrative Positions**

Director, Livelabs Urban Lifestyle Innovation Platform, SMU, Jul 2012 - Jun 2018

## **RESEARCH**

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### **Research Interests**

Mobile and pervasive computing  
Operating systems  
Distributed computing  
Software engineering  
Usability of software systems  
Usability testing  
Networking

### **Publications**

#### Journal Articles [Refereed]

Cloud-based query evaluation for energy-efficient mobile sensing, by MO, Tianli; LIM, Lipyeow; SEN, Sougata; MISRA, Archan; BALAN, Rajesh Krishna; LEE, Youngki. (2017). *Pervasive and Mobile Computing*, 38 (1), 257-274. <https://doi.org/10.1016/j.pmcj.2016.12.005> (Published)

Cyber foraging: Fifteen years later, by BALAN, Rajesh Krishna; FLINN, Jason. (2017). *IEEE Pervasive Computing*, 16 (3), 24-30. <https://doi.org/10.1109/MPRV.2017.2940972> (Published)

LiveLabs: Initial reflections on building a large-scale mobile behavioral experimentation testbed, by MISRA, Archan; BALAN, Rajesh Krishna. (2013). *ACM SIGMOBILE Mobile Computing and Communications Review*, 17 (4), 47-59. <http://doi.org/10.1145/2557968.2557975> (Published)

ARIVU: Making networked mobile games green: A scalable power-aware middleware, by BHOJAN, Anand; Akhihebbal L., Ananda L.; CHAN, Mun Choon; BALAN, Rajesh Krishna. (2012). *Mobile Networks and Applications*, 17 (1), 21-28. <http://dx.doi.org/10.1007/s11036-011-0312-8> (Published)

The digital wallet: Opportunities and prototypes, by BALAN, Rajesh Krishna; RAMASUBBU, Narayanasamy. (2009). *Computer*, 42 (4), 100-102. <http://dx.doi.org/10.1109/MC.2009.134> (Published)

Powerful change part 2: Reducing the power demands of mobile devices, by BALAN, Rajesh Krishna. (2004). *IEEE Pervasive Computing*, 3 (2), 71-73. <http://doi.org/10.1109/mprv.2004.1316822> (Published)

Avoiding Congestion Collapse on the Internet Using TCP Tunnels, by LEE, Boon Peng; BALAN, Rajesh Krishna; Lillykutty, Jacob; Seah, Winston; Ananda, A. L.. (2002). *Computer Networks*, 39 (2), 207-219. [http://dx.doi.org/10.1016/s1389-1286\(01\)00311-5](http://dx.doi.org/10.1016/s1389-1286(01)00311-5) (Published)

TCP Hack: TCP Header Checksum Option to Improve Performance over Lossy Links, by BALAN, Rajesh Krishna; LEE, Boon Peng; KUMAR, Renjish; Lillykutty, Jacob; Seah, Winston; Ananda, A. L.. (2002). *Computer Networks*, 39 (4), 347-361. [http://dx.doi.org/10.1016/s1389-1286\(01\)00310-3](http://dx.doi.org/10.1016/s1389-1286(01)00310-3) (Published)

Multi-Modal Network Protocols, by BALAN, Rajesh Krishna; Akella, Aditya; Seshan, Srini. (2002). *Computer Communication Review*, 32 (1), 60-60. <http://dx.doi.org/10.1145/510726.510734> (Published)

### Conference Proceedings

TagScan: Simultaneous target imaging and material identification with commodity RFID devices, by WANG, Ju; XIONG, Jie; CHEN, Xiaojiang; JIANG, Hongbo; BALAN, Rajesh Krishna; FANG, Dingyi. (2017). *Proceedings of the Annual International Conference on Mobile Computing and Networking: MobiCom 2017, Snowbird, United States, October 16-20*, (pp. 288-300) Snowbird, United States: Association for Computing Machinery. <https://doi.org/10.1145/3117811.3117830> (Published)

Experiences in building a real-world eating recogniser, by SEN, Sougata; SUBBARAJU, Vigneshwaran; MISRA, Archan; BALAN, Rajesh Krishna; LEE, Youngki. (2017). *WPA '17: Proceedings of the 4th International on Workshop on Physical Analytics, Niagara Falls, June 19*, (pp. 7-12) New York: ACM. <http://doi.org/10.1145/3092305.3092306> (Published)

DeepMon: Mobile GPU-based deep learning framework for continuous vision applications, by HUYNH, Loc Nguyen; LEE, Youngki; BALAN, Rajesh Krishna. (2017). *Proceedings of the 15th Annual International Conference on Mobile Systems, Applications, and Services, Niagara Falls; United States, 2017 June 19-23*, Niagara Falls; United States: <http://doi.org/10.1145/3081333.3081360> (Published)

Empath-D: Empathetic design for accessibility, by CHOO, Kenny Tsu Wei; BALAN, Rajesh Krishna; TAN, Kiat Wee; MISRA, Archan; LEE, Youngki. (2017). *HotMobile '17: Proceedings of the 18th International Workshop on Mobile Computing Systems and Applications, Sonoma, CA, USA, February 21-22*, (pp. 55-60) New York: ACM. <http://doi.org/10.1145/3032970.3032981> (Published)

Jasper: Sensing gamers' emotions using physiological sensors, by HUYNH, Sinh; LEE, Youngki; PARK, Taiwoo; BALAN, Rajesh. (2016). *MobiGames '16: Proceedings of the 3rd Workshop on Mobile Gaming, Singapore, June 30*, (pp. 1-6) New York: ACM. <http://dx.doi.org/10.1145/2934646.2934648> (Published)

DeepSense: A GPU-based deep convolutional neural network framework on commodity mobile devices, by HUYNH, Loc Nguyen; BALAN, Rajesh Krishna; LEE, Youngki. (2016). *WearSys'16: Proceedings of the 2016 Workshop on Wearable Systems and Applications: June 30, 2016, Singapore*, (pp. 25-30) New York: ACM. <http://doi.org/10.1145/2935643.2935650> (Published)

Small scale deployment of seat occupancy detectors, by HUY, Nguyen Huy Hoang; HETTIARACHCHI, Gihan; LEE, Youngki; BALAN, Rajesh Krishna. (2016). *WPA '16: Proceedings of the 3rd International on Workshop on Physical Analytics 2016: Singapore, June 26*, (pp. 25-30) New York: ACM. <https://dx.doi.org/10.1145/2935651.2935660> (Published)

LiveLabs: Building in-situ mobile sensing and behavioural experimentation testbeds, by JAYARAJAH,

- Kasthuri; BALAN, Rajesh Krishna; RADHAKRISHNAN, Meeralakshmi; MISRA, Archan; LEE, Youngki. (2016). *Mobisys '16: Proceedings of the 14th International Conference on Mobile Systems, Applications, and Services, Singapore, 25-30 June 2016*, (pp. 1-15) New York: ACM. <http://dx.doi.org/10.1145/2906388.2906400> (Published)
- Graph-aided directed testing of Android applications for checking runtime privacy behaviours, by CHAN, Joseph Joo Keng; JIANG, Lingxiao; TAN, Kiat Wee; BALAN, Rajesh K.. (2016). *AST 2016: Proceedings of the 11th International Workshop on Automation of Software Test, Austin, Texas, 14-15 May*, (pp. 57-63) New York: ACM. <http://doi.org/10.1145/2896921.2896930> (Published)
- Leveraging automated privacy checking for design of mobile privacy protection mechanisms, by CHAN, Joseph Joo Keng; JIANG, Lingxiao; TAN, Kiat Wee; BALAN, Rajesh. (2016). *CHI 2016 Workshop: Bridging the Gap between Privacy by Design and Privacy in Practice, San Jose, 7 May*, (pp. 1-4) New York: ACM. (Published)
- IoT+Small Data: Transforming In-Store Shopping Analytics and Services, by RADHAKRISHNAN, Meera; SEN, Sougata; SUBBARAJU, Vigneshwaran; MISRA, Archan; BALAN, Rajesh Krishna. (2016). *COMSNETS 2016 Workshop: Wild and Crazy Ideas on the interplay between IoT and Big Data (WACI): January 5-9, 2016, Bangalore, India*, Piscataway, NJ: IEEE. (Published)
- Real-time Detection of Seat Occupancy and Hogging, by NGUYEN, Huy Hoang; GULATI, Nakul; LEE, Youngki; BALAN, Rajesh Krishna. (2015). *IoT-App '15: Proceedings of the 2015 International Workshop on Internet of Things towards Applications: Seoul, Korea, November 1, 2015*, (pp. 29-34) Seoul, Korea: ACM. <http://dx.doi.org/10.1145/2820975.2820981> (Published)
- Smartphones and BLE Services: Empirical Insights, by RADHAKRISHNAN, Meera; MISRA, Archan; BALAN, Rajesh Krishna; LEE, Youngki. (2015). *IEEE International Conference on Mobile Ad Hoc and Sensor Systems MASS 2015: October 19-22, Dallas, Texas: Proceedings*, (pp. 226-234) Piscataway, NJ: IEEE. <http://dx.doi.org/10.1109/MASS.2015.92> (Published)
- Need accurate user behaviour?: Pay attention to groups!, by JEYARAJAH, Kasthuri; LEE, Youngki; MISRA, Archan; BALAN, Rajesh Krishna. (2015). *UbiComp '15: Proceedings of the 2015 ACM International Joint Conference on Pervasive and Ubiquitous Computing: Osaka, Japan, September 7-11, 2015*, (pp. 855-866) New York: ACM. <http://dx.doi.org/10.1145/2750858.2804289> (Published)
- Matchmaking Game Players on Public Transport, by ZHANG, Nairan; LEE, Youngki; BALAN, Rajesh Krishna. (2015). *Proceedings of the 2nd Workshop on Mobile Gaming (MobiGames)*, (pp. 31-36) Florence, Italy: ACM New York. <http://dx.doi.org/10.1145/2751496.2751503> (Published)
- GameOn: p2p gaming on public transport, by ZHANG, Nairan, LEE, Youngki, RADHAKRISHNAN, Meera, BALAN, Rajesh Krishna. (2015). *MobiSys '15: Proceedings of the 13th Annual International Conference on Mobile Systems, Applications, and Services: May 19-22, 2015, Florence, Italy*, (pp. 105-119) New York: ACM. <http://dx.doi.org/10.1145/2742647.2742660> (Published)
- QueueVadis: Queuing analytics using smartphones, by OKOSHI, Tadashi; LU, Vu; VIG, Chetna; LEE, Youngki; BALAN, Rajesh Krishna; MISRA, Archan. (2015). *IPSN '15: Proceedings of the 14th International Conference on Information Processing in Sensor Networks, Seattle, 13-16 April 2015*, (pp. 214-225) New York: ACM. <http://dx.doi.org/10.1145/2737095.2737120> (Published)
- The case for smartwatch-based diet monitoring, by SEN, Sougata; SUBBARAJU, Vigneshwaran; MISRA, Archan; BALAN, Rajesh Krishna; LEE, Youngki. (2015). *IEEE International Conference on Pervasive Computing and Communication Workshops: Proceedings: 23-27 March 2015, St Louis, MO*, (pp. 585-590) Piscataway, NJ: IEEE. <http://dx.doi.org/10.1109/PERCOMW.2015.7134103> (Published)
- Using Infrastructure-provided Context Filters for Efficient Fine-grained Activity Sensing, by SUBBARAJU, Vigneshwaran; SEN, Sougata; MISRA, Archan; Chakraborty, Satyadip; BALAN, Rajesh Krishna. (2015). *IEEE International Conference on Pervasive Computing and Communication 13th PerCom: Proceedings: 23-27 March 2015, St Louis, MO*, (pp. 87-94) Piscataway, NJ: IEEE. <http://dx.doi.org/10.1109/PERCOM.2015.7146513> (Published)
- myDeal: A Mobile Shopping Assistant Matching User Preferences to Promotions, by MURALIDHARAN, Kartik; GOTTIPATI, Swapna; JIANG, Jing; RAMSUBBU, Narayan; BALAN, Rajesh Krishna. (2014). *MOBIQUITOUS '14: Proceedings of the 11th International Conference on Mobile and Ubiquitous Systems: Computing, Networking and Services: 2-5 December 2014, London*, (pp. 238-247) Brussels: ICST. <http://dx.doi.org/10.4108/icst.mobiquitous.2014.257708> (Published)

- GruMon: Fast and accurate group monitoring for heterogeneous urban spaces, by SEN, Rijurekha; LEE, Youngki; JAYARAJAH, Kasthuri; BALAN, Rajesh Krishna; MISRA, Archan. (2014). *SenSys '14: Proceedings of the 12th ACM Conference on Embedded Network Sensor Systems: November 3-6, 2014, Memphis, TN*, (pp. 46-60) New York: ACM. <http://dx.doi.org/10.1145/2668332.2668340> (Published)
- Cloud-based query evaluation for energy-efficient mobile sensing, by MO, Tianli; SEN, Sougata; LIPYEOW, Lim; MISRA, Archan; BALAN, Rajesh Krishna; LEE, Youngki. (2014). *2014 IEEE 15th International Conference on Mobile Data Management: IEEE MDM 2014: 15-18 July 2014, Brisbane, Australia*, (pp. 221-224) Los Alamitos, CA: IEEE Computer Society. <http://dx.doi.org/10.1109/MDM.2014.33> (Published)
- The case for human-centric personal analytics, by LEE, Youngki; BALAN, Rajesh Krishna. (2014). *WPA'14: Proceedings of the 2014 ACM Workshop on Physical Analytics: June 16, 2014, Bretton Woods, NH*, (pp. 25-29) New York: ACM. <http://dx.doi.org/10.1145/2611264.2611267> (Published)
- Handling Location Uncertainty in Event Driven Experimentation, by MURALIDHARAN, Kartik; BALAN, Rajesh Krishna; SESHAN, Srini; RAMASUBBU, Narayan. (2014). *EBS'14: proceedings of the 8th ACM International Conference on Distributed Event-Based Systems: May 26-29, 2014, Mumbai, India*, (pp. 206-212) New York: ACM. (Published)
- Deal or No Deal: Catering to User Preferences, by MURALIDHARAN, Kartik; GOTTIPATI, Swapna; BALAN, Rajesh Krishna. (2014). *2014 IEEE International Conference on Pervasive Computing and Communication (PERCOM) Workshops: 24-28 March 2014, Budapest, Hungary: Proceedings*, (pp. 199-202) Piscataway, NJ: IEEE. <http://dx.doi.org/10.1109/PerComW.2014.6815200> (Published)
- LiveLabs: Building in-situ mobile sensing & behavioural experimentation testbeds, by BALAN, Rajesh Krishna; MISRA, Archan; LEE, Youngki. (2014). *Proceedings of the 15th Workshop on Mobile Computing Systems and Applications HotMobile '14, Santa Barbara, CA, February 26-27, 2014*, New York: ACM. <http://dx.doi.org/10.1145/2565585.2565597> (Published)
- Barometric phone sensors: More hype than hope!, by MURALIDHARAN, Kartik; KHAN, Azeem Javed; MISRA, Archan; BALAN, Rajesh Krishna; AGARWAL, Sharad. (2014). *Proceedings of the 15th Workshop on Mobile Computing Systems and Applications HotMobile '14, Santa Barbara, CA, February 26-27, 2014*, New York: ACM. <http://dx.doi.org/10.1145/2565585.2565596> (Published)
- Mobile Platform and Application Research at SMU LiveLabs, by GOTTIPATI, Swapna; Sebastian, Jeena; TUAN, Luong Trung; TAN, Kiat Wee; CHAN, Joseph; KENG, Joo; Muralidharan, Kartik; Okoshi, Tadashi; LEE, Youngki; MISRA, Archan; BALAN, Rajesh Krishna. (2014). *2014 6th International Conference on Communication Systems and Networks (COMSNETS): January 7-10, 2014, Bangalore, India*, (pp. 1-4) NEW YORK: IEEE. <http://dx.doi.org/10.1109/COMSNETS.2014.6734911> (Published)
- The challenge of continuous mobile context sensing, by BALAN, Rajesh Krishna; LEE, Youngki; TAN, Kiat Wee; MISRA, Archan. (2014). *2014 Sixth International Conference on Communication Systems and Networks (COMSNETS): 6-10 January 2014, Bangalore*, (pp. 1-8) Piscataway, NJ: IEEE. <http://dx.doi.org/10.1109/COMSNETS.2014.6734869> (Published)
- Challenges and Opportunities in Taxi Fleet Anomaly Detection, by Sen, Rijurekha; BALAN, Rajesh Krishna. (2013). *SENSEMININE'13: Proceedings of the 1st International Workshop on Sensing and Big Data Mining (SenseMine)*, (pp. 1-6) Rome, Italy: ACM. <http://dx.doi.org/10.1145/2536714.2536715> (Published)
- Focus: A Usable & Effective Approach to OLED Display Power Management, by TAN, Kiat Wee; Okoshi, Tadashi; MISRA, Archan; BALAN, Rajesh Krishna. (2013). *UbiComp '13 Proceedings of the 2013 ACM international joint conference on Pervasive and ubiquitous computing*, (pp. 573-582) Zurich, Switzerland: (Published)
- The case for mobile forensics of private data leaks: Towards large-scale user-oriented privacy protection, by CHAN, Joseph Joo Keng; TAN, Kiat Wee; JIANG, Lingxiao; BALAN, Rajesh Krishna. (2013). *APSys '13: Proceedings of the 4th Asia-Pacific Workshop on Systems: Singapore, 29-30 July*, (pp. 1-7) New York: ACM. <http://doi.org/10.1145/2500727.2500733> (Published)
- CAMEO: A Middleware for Mobile Advertisement Delivery, by Khan, Azeem Javed Iqbal; Jeyarajah, Kasthuri; HAN, Dongsu; MISRA, Archan; BALAN, Rajesh Krishna; SESHAN, Srinivasan. (2013). *MobiSys '13 Proceeding of the 11th annual international conference on Mobile systems, applications, and services*, (pp. 125-138) New York, NY, USA: ACM. <http://dx.doi.org/10.1145/2462456.2464436> (Published)
- Experiences with Performance Tradeoffs in Practical, Continuous Indoor Localization, by Khan, Azeem Javed; Ranjan, Vikash; Luong, Trung-Tuan; BALAN, Rajesh Krishna; MISRA, Archan. (2013). *14th*

*International Symposium on a World of Wireless, Mobile and Multimedia Networks (WoWMoM), Madrid, Spain, June 4-7, 2013: Proceedings*, (pp. 1-9) Piscataway, NJ: IEEE.  
<http://dx.doi.org/10.1109/WoWMoM.2013.6583387> (Published)

The Case for Cloud-Enabled Mobile Sensing Services, by SEN, Sougata; MISRA, Archan; BALAN, Rajesh Krishna; LIM, Lipyeow. (2012). *MCC '12: Proceedings of the first edition of the MCC Workshop on Mobile Cloud Computing: August 17, 2012, Helsinki, Finland*, (pp. 53-58) New York: ACM.  
<http://dx.doi.org/10.1145/2342509.2342521> (Published)

Adaptive Display Power Management for OLED Displays, by TAN, Kiat Wee; BALAN, Rajesh Krishna. (2012). *MobiGames'12: Proceedings of the ACM International Workshop on Mobile Gaming: August 13, 2012, Helsinki, Finland*, (pp. 25-30) New York: ACM. <http://dx.doi.org/10.1145/2342480.2342487> (Published)

Dynamic Lookahead Mechanism for Conserving Power in Multi-Player Mobile Games, by Thirugnanam, Karthik; Anand, Bhojan; Sebastian, Jeena; Kannan, Pravein; Ananda, Akhihebbal L.; BALAN, Rajesh Krishna; Chan, Mun Choon. (2012). *Proceedings 2012 IEEE INFOCOMM International Conference on Computer Communications, Orlando, Florida, 25-30 March 2012*, (pp. 2721-2725) Piscataway, NJ: IEEE.  
<http://dx.doi.org/10.1109/INFOCOM.2012.6195687> (Published)

HuMan: Creating Memorable Fingerprints of Mobile Users, by PAYAS, Gupta; TAN, Kiat Wee; RAMASUBBU, Narayanasamy; LO, David; GAO, Debin; BALAN, Rajesh Krishna. (2012). *2012 IEEE International Conference on Pervasive Computing and Communications Workshops, Lugano, Switzerland, 19-23 March 2012: Proceedings*, (pp. 479-482) Piscataway, NJ: IEEE.  
<http://dx.doi.org/10.1109/PerComW.2012.6197540> (Published)

Adaptive Display Power Management for Mobile Games, by ANAND, Bhojan; THIRUGNANAM, Karthik; SEBASTIAN, Jeena; KANNAN, Pravein G.; ANANDA, Akhihebbal L.; CHAN, Mun Choon; BALAN, Rajesh Krishna. (2011). *MobiSys '11: Proceedings of the 9th International Conference on Mobile Systems, Applications, and Services: June 28 - July 1, 2011, Bethesda, MD*, (pp. 57-70) New York: ACM.  
<http://dx.doi.org/10.1145/1999995.2000002> (Published)

Real-time trip information service for a large taxi fleet, by BALAN, Rajesh Krishna; KHOA, Nguyen Xuan; JIANG, Lingxiao. (2011). *MobiSys '11: Proceedings of the 9th International Conference on Mobile Systems, Applications and Services: Bethesda, MD, June 28 - July 1*, (pp. 99-112) New York: ACM.  
<http://doi.org/10.1145/1999995.2000006> (Published)

Configuring Global Software Teams: A Multi-Company Analysis of Productivity, Quality, and Profits, by RAMASUBBU, Narayanasamy; Cataldo, Marcelo; BALAN, Rajesh Krishna; Herbsleb, James. (2011). *ICSE 2011: Proceedings of the 2011 International Conference on Software Engineering: May 21-28, 2011, Waikiki, Honolulu*, (pp. 261-270) New York: ACM. <http://dx.doi.org/10.1145/1985793.1985830> (Published)

PGTP: Power Aware Game Transport Protocol for Multi-Player Mobile Games, by Anand, Bhojan; Sebastian, Jeena; SOH, Yu Ming; Ananda, Akhihebbal L.; CHAN, Mun Choon; BALAN, Rajesh Krishna. (2011). *International Conference on Communications and Signal Processing (ICCSP), 2011: 10 - 12 February 2011, [Calicut], Kerala, India*, (pp. 399-404) Piscataway, NJ: IEEE.  
<http://dx.doi.org/10.1109/ICCSP.2011.5739346> (Published)

ARIVU: Power-Aware Middleware for Multiplayer Mobile Games, by Bhojan, Anand; Thirugnanaman, Karthik; LE, Thanh Long; Pham, Duc-Dung; Ananda, Akhihebbal L.; BALAN, Rajesh Krishna; Chan, Mun Choon. (2010). *NetGames 2010: 2010 9th Annual Workshop on Network and Systems Support for Games, November 16-17, 2010, Taipei, Taiwan*, (pp. 1-6) Piscataway, NJ: IEEE.  
<http://dx.doi.org/10.1109/NETGAMES.2010.5679571> (Published)

Evolution of a Bluetooth Test Application Product Line: A Case Study, by RAMASUBBU, Narayanasamy; BALAN, Rajesh Krishna. (2010). *Proceedings of the 18th ACM SIGSOFT Symposium on the Foundations of Software Engineering (FSE), November 7 - 11, 2010, Santa Fe, NM*, (pp. 107-116) New York: ACM.  
<http://dx.doi.org/10.1145/1882291.1882309> (Published)

Game Action Based Power Management for Multiplayer Online Game, by Bhojan, Anand; Ananda, A. L.; Chan, Mun Choon; Long, Le Thanh; BALAN, Rajesh Krishna. (2009). *First ACM SIGCOMM Workshop on Networking, Systems, Applications on Mobile Handhelds (MobiHeld)*, Barcelona, Spain: ACM.  
<http://dx.doi.org/10.1145/1592606.1592619> (Published)

mFerio: The Design and Evaluation of a Peer-to-Peer Mobile Payment System, by BALAN, Rajesh Krishna; RAMASUBBU, Narayanasamy; Prakobphol, Komsit; Christin, Nicolas; Honq, Jason. (2009). *MobiSys'09*:

*Proceedings of the 7th ACM International Conference on Mobile Systems, Applications and Services, June 22-25, 2009, Krakow, Poland*, (pp. 291-305) New York: ACM. <http://dx.doi.org/10.1145/1555816.1555846> (Published)

The Impact of Process Choice in High Maturity Environments: An Empirical Analysis, by RAMASUBBU, Narayanasamy; BALAN, Rajesh Krishna. (2009). *IEEE 31st International Conference on Software Engineering: ICSE 2009: 16-24 May 2009, Vancouver, Canada: Proceedings*, (pp. 529-539) Piscataway, NJ: IEEE. <http://dx.doi.org/10.1109/ICSE.2009.5070551> (Published)

User Guidance of Resource-Adaptive Systems, by SOUSA, João Pedro; BALAN, Rajesh Krishna; Poladian, Vahe; Garlan, David; Satyanarayanan, Mahadev. (2008). *Proceedings of the Third International Conference on Software and Data Technologies: Porto, Portugal, July 5 - 8, 2008*, (pp. 36-44) Porto, Portugal: INSTICC Press. <http://worldcat.org/isbn/9789898111524> (Published)

Towards Governance Schemes for Distributed Software, by RAMASUBBU, Narayanasamy; BALAN, Rajesh Krishna. (2008). *SDG '08: Proceedings of the 1st International Workshop on Software Development Governance: 2008, Leipzig, Germany, May 12-12, 2008*, (pp. 11-14) New York: ACM. <http://dx.doi.org/10.1145/1370720.1370725> (Published)

Globally Distributed Software Development Project Performance: An Empirical Analysis, by RAMASUBBU, Narayanasamy; BALAN, Rajesh Krishna. (2007). *ESEC/FSE 2007: The 6th Joint Meeting of the European Software Engineering Conference and the ACM SIGSOFT Symposium on the Foundations of Software Engineering: Dubrovnik, Croatia, September 3-7, 2007*, (pp. 125-134) New York: ACM. <http://dx.doi.org/10.1145/1287624.1287643> (Published)

Simplifying Cyber Foraging for Mobile Devices, by BALAN, Rajesh Krishna; Gergle, Darren; Satyanarayanan, Mahadev; Herbsleb, James. (2007). *MobiSys '07: Proceedings of the 5th International Conference on Mobile Systems, Applications and Services: San Juan, Puerto Rico, June 11-13, 2007*, (pp. 272-285) New York: ACM. <http://dx.doi.org/10.1145/1247660.1247692> (Published)

Matrix: Adaptive Middleware for Distributed Multiplayer Games, by BALAN, Rajesh Krishna; Ebling, Maria; Castro, Paul; MISRA, Archan. (2005). *Middleware 2005: ACM/IFIP/USENIX 6th International Middleware Conference, Grenoble, France, November 28 - December 2, 2005: Proceedings*, (pp. 390-400) Berlin: Springer Verlag. [http://dx.doi.org/10.1007/11587552\\_20](http://dx.doi.org/10.1007/11587552_20) (Published)

Tactics-Based Remote Execution for Mobile Computing, by BALAN, Rajesh Krishna; SATAYANARAYANA, Mahadev; PARK, SoYoung; OKOSHI, Tadashi. (2003). *MobiSys '03: Proceedings of the 1st International Conference on Mobile Systems, Applications and Services: San Francisco, May 5-8, 2003*, (pp. 273-286) New York: ACM. <http://dx.doi.org/10.1145/1066116.1066125> (Published)

The Case for Cyber Foraging, by BALAN, Rajesh Krishna; Flinn, Jason; Satyanarayanan, Mahadev; Sinnamohideen, Shafeeq; YANG, Hen-I. (2002). *EW 10: Proceedings of the 10th Workshop on ACM SIGOPS European Workshop: Saint Emillion, France, July 1, 2002*, (pp. 87-92) New York: ACM. <http://dx.doi.org/10.1145/1066116.1066125> (Published)

TCP HACK: TCP Header Checksum Option to Improve Performance Over Lossy Links, by BALAN, Rajesh Krishna; LEE, Boon Peng; KUMAR, Renjish; Lillykutty, Jacob; Seah, Winston; Ananda, A. L.. (2001). *INFOCOM 2001: Proceedings of 20th Annual Joint Conference on Computer Communications, 22-26 April 2001, Anchorage, Alaska*, (pp. 309-318) Piscataway, NJ: IEEE. <http://dx.doi.org/10.1109/INFOCOM.2001.916713> (Published)

## Other Outputs and Contributions

### Reports

*Spatio-Temporal Efficiency in a Taxi Dispatch System* by SANTANI, Darshan; BALAN, Rajesh Krishna; WOODARD, C. Jason. (2008). (Published)

*Dimorphic Computing* by Lagar-Cavilla, H. Andreas; Tolia, Niraj; BALAN, Rajesh Krishna; De Lara, Eyal; Satyanarayanan, Mahadev; O'Halloran, David. (2006). <http://repository.cmu.edu/pdl/43/> (Published)

*Giving Users the Steering Wheel for Guiding Resource-Adaptive Systems* by SOUSA, Joao; BALAN, Rajesh Krishna; Poladian, Vahe; Garlan, David; Satyanarayanan, Mahadev. (2005). (Published)

*Meeting the Software Engineering Challenges of Adaptive Mobile Applications* by BALAN, Rajesh Krishna; SOUSA, Joao; SATYANARAYANAN, Mahadev. (2003).  
<http://citeseerx.ist.psu.edu/viewdoc/summary?doi=10.1.1.13.728> (Published)

#### Poster

myDeal: The Context-Aware Urban Shopping Assistant, by MURALIDHARAN, Kartik; GOTTIPATI, Swapna Gottipati; JIANG, Jing; RAMASUBBU, Narayan; BALAN, Rajesh Krishna. (24 Jul 2012). *Asia-Pacific Workshop on Systems APSYS 2012, July 23-24, Seoul*, (Published)

### **Research Grants**

#### Singapore Management University

Building a Practical Location System for Tracking Consumer Movement in Indoor Public Spaces, Microsoft Research Asia , PI (Project Level): Rajesh Krishna BALAN, 2013, S\$26,000

Windows Phone 7 Location Detection Framework, Microsoft Research Asia , PI (Project Level): Rajesh Krishna BALAN, 2012, S\$15,120

LiveLabs Urban Lifestyle Innovation Platform, Digital Technology Development Scheme, Media Development Authority of Singapore (MDA) , PI (Programme Level): Rajesh Krishna BALAN , PI (Project Level): Archan MISRA, 2012, S\$9,994,000

Energy-Efficient Stream Analytics on Smartphones for Realtime Contextual Insight, Academic Research Fund (AcRF) Tier 2, Ministry of Education (MOE) , PI (Project Level): Archan MISRA , Co-PI (Project Level): Rajesh Krishna BALAN, 2011, S\$1,167,365

Power and Network-Aware Software Infrastructure for Multiplayer Mobile Games, Academic Research Fund (AcRF) Tier 2, Ministry of Education (MOE) , PI (Project Level): Rajesh Krishna BALAN, 2008, S\$1,168,000

Personality in Real-Time Real-World Behaviour, SMU Internal Grant, Ministry of Education (MOE) Tier 1 , PI (Project Level): William TOV, 2015, S\$25,580

User-Centric Mobile Authentication Mechanisms, SMU Internal Grant, Ministry of Education (MOE) Tier 1 , PI (Project Level): Rajesh Krishna BALAN, 2009, S\$9,408

Estimating Costs in Distributed Software Development and System Migration, SMU Internal Grant, Ministry of Education (MOE) Tier 1 , PI (Project Level): Narayan RAMASUBBU , Co-PI (Project Level): Rajesh Krishna BALAN, 2008, S\$14,650

Digital Wallet Creation, Testing, and Deployment, SMU Internal Grant, Ministry of Education (MOE) Tier 1 , PI (Project Level): Rajesh Krishna BALAN, 2007, S\$49,400

### **TEACHING**

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#### **Courses Taught**

#### Singapore Management University

Undergraduate Programmes :

Mobile & Pervasive Technology

Software Engineering



Postgraduate Research Programmes :

Empirical Research Project 1

Empirical Research Project 2

Empirical Research Project 3

**EXTERNAL SERVICE – PROFESSIONAL**

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Student Engagement Director, Executive Committee, ACM SIGMOBILE, 2017 - 2022

General Chair, The ACM International Joint Conference on Pervasive and Ubiquitous Computing (UbiComp), ACM, 2017

Chairperson, 17th International Conference on Distributed Computing and Networking (ICDCN), ICDCN, 2016

Chairperson, The 13th ACM Conference on Embedded Networked Sensor Systems (SenSys), ACM, 2015

Chairperson, The 10th Annual International Conference on Mobile Systems, Applications and Services (MobiSys), ACM SIGMOBILE, 2015

Chairperson, The ACM Multimedia Systems Conference Special Session on Mobile Multimedia Sensing (MMSys), ACM SIGMM, 2014 - Present

One of Two Co-Editors for a Special Issue on Transportation Systems, IEEE Pervasive Computing Magazine, IEEE Computer Society, 2012 - 2013

Chairperson, The Thirteenth Workshop on Mobile Computing Systems and Applications (HotMobile), ACM SIGMOBILE, 2012 - Present

Chairperson, The Twelfth International Workshop on Mobile Computing Systems and Applications (HotMobile), ACM SigMobile, 2011 - Present

Chairperson, The 8th Annual International Conference on Mobile Systems, Applications, and Services (MobiSys), ACM SIGMOBILE, 2009 - Present