

Muhammad Ikram  
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## Biography

Dr Muhammad Ikram is a lecturer in Cybersecurity at Department of Computing, Macquarie University. He is a member of Information Security and Privacy (ISP) group at Macquarie University and a visiting scientist at Data61, CSIRO. Before joining Macquarie University, he was a joint postdoctoral research fellow at University of Michigan and Macquarie University. He completed his PhD in Electrical Engineering and Telecommunication from UNSW, Sydney. Ikram's current research interests are focused on data-driven analysis of privacy and security issues in mobile and Web applications. He has been thinking and working to build techniques leveraging machine-learning algorithms to fight against security and privacy issues and fraud detection targeting online services.  
Web: <https://imikr4m.github.io>

## Qualifications

Electrical Engineering and Telecommunication, PhD, The University of New South Wales  
1 Sep 2014 → 16 May 2018  
30 Sep 2020 HDR30: HDR Supervision Orientation 2020-2023, HDR31

## Employment

### Lecturer in Cyber Security

Lecturer  
Department of Computing  
Macquarie University  
8 Oct 2019 → present

### Research Scientist

Networks Research Group Data61  
Eveleigh, Australia  
1 Sep 2019 → present

### Postdoc Researcher

University of Michigan  
Ann Arbor, MI 48109-5201, United States  
1 Jul 2018 → 31 Aug 2019

## Research outputs

### Security and privacy in IoT using machine learning and blockchain: threats and countermeasures

Waheed, N., He, X., Ikram, M., Usman, M., Hashmi, S. S. & Usman, M., Dec 2020, In : ACM Computing Surveys. 53, 6, 37 p., 122.

### Measuring and analysing the chain of implicit trust: a study of third-party resources loading

Ikram, M., Masood, R., Tyson, G., Kaafar, M. A., Loizon, N. & Ensafi, R., Apr 2020, In : ACM Transactions on Privacy and Security (TOPS). 23, 2, p. 1-27 27 p., 8.

### Decentralized control: a case study of Russia

Ramesh, R., Raman, R. S., Bernhard, M., Ongkowijaya, V., Evdokimov, L., Edmundson, A., Sprecher, S., Ikram, M. & Ensafi, R., 2020, *Proceedings, 2020 Network and Distributed System Security Symposium*. Reston, VA: Internet Society, 18 p.

### **iOS, your OS, everybody's OS: vetting and analyzing network services of iOS applications**

Tang, Z., Tang, K., Xue, M., Tian, Y., Chen, S., Ikram, M., Wang, T. & Zhu, H., 2020, *Proceedings of the 29th USENIX Security Symposium*. Berkeley, CA: USENIX Association, p. 2415-2432 18 p.

### **A decade of mal-activity reporting: a retrospective analysis of Internet malicious activity blacklists**

Zhao, B. Z. H., Ikram, M., Asghar, H. J., Kaafar, M. A., Chaabane, A. & Thilakarathna, K., Jul 2019, *Proceedings of the 2019 ACM Asia Computer Communication and Security (AsiaCCS)*. New York: Association for Computing Machinery (ACM), p. 193-205 13 p.

### **A cartography of web tracking using DNS records**

Su, J., Li, Z., Grumbach, S., Ikram, M., Salamatian, K. & Xie, G., 15 Jan 2019, In : *Computer Communications*. 134, p. 83-95 13 p.

### **A longitudinal analysis of online ad-blocking blacklists**

Hashmi, S. S., Ikram, M. & Kaafar, M. A., 2019, *Proceedings - 2019 IEEE 44th Local Computer Networks Symposium on Emerging Topics in Networking, LCN Symposium 2019*. Andersson, K., Tan, H-P. & Oteafy, S. (eds.). Piscataway, NJ: Institute of Electrical and Electronics Engineers (IEEE), p. 158-165 8 p. (Proceedings - 2019 IEEE 44th Local Computer Networks Symposium on Emerging Topics in Networking, LCN Symposium 2019).

### **DaDiDroid: an obfuscation resilient tool for detecting Android malware via weighted directed call graph modelling**

Ikram, M., Beaume, P. & Kaafar, M. A., 2019, *Proceedings of the 16th International Joint Conference on e-Business and Telecommunications: Volume 2: SECRYPT*. Obaidat, M. S. & Samarati, P. (eds.). Setúbal: SciTePress, Vol. 2. p. 211-219 9 p.

### **On optimization of ad-blocking lists for mobile devices**

Hashmi, S. S., Ikram, M. & Smith, S., 2019, *Proceedings of the 16th EAI International Conference on Mobile and Ubiquitous Systems: Computing, Networking and Services*. New York: Association for Computing Machinery (ACM), p. 220-227 8 p.

### **The chain of implicit trust: an analysis of the Web third-party resources loading**

Ikram, M., Masood, R., Tyson, G., Kaafar, M. A., Loizon, N. & Ensafi, R., 2019, *Proceeding WWW '19 The World Wide Web Conference*. New York: Association for Computing Machinery (ACM), p. 2851-2857 7 p.

### **Incognito: a method for obfuscating Web data**

Masood, R., Vatsalan, D., Ikram, M. & Kaafar, M. A., 2018, *The Web Conference 2018 - Proceedings of the World Wide Web Conference, WWW 2018*. Switzerland: Association for Computing Machinery (ACM), p. 267-276 10 p. (The Web Conference 2018 - Proceedings of the World Wide Web Conference, WWW 2018).

### **Web tracking cartography with DNS records**

Su, J., Li, Z., Grumbach, S., Ikram, M., Salamatian, K. & Xie, G., 2018, *IEEE 37th International Performance Computing and Communications Conference (IPCCC)*. Piscataway, NJ: Institute of Electrical and Electronics Engineers (IEEE), p. 1-8 8 p.

### **A first look at mobile Ad-Blocking apps**

Ikram, M. & Kaafar, M. A., 8 Dec 2017, *2017 IEEE 16th International Symposium on Network Computing and Applications: NCA 2017*. Piscataway, NJ: Institute of Electrical and Electronics Engineers (IEEE), p. 1-8 8 p.

### **Towards seamless tracking-free web: Improved detection of trackers via one-class learning**

Ikram, M., Asghar, H. J., Kaafar, M. A., Mahanti, A. & Krishnamurthy, B., 2017, In : *Proceedings on Privacy Enhancing Technologies*. 2017, 1, p. 79-99 21 p.

### **Characterizing seller-driven black-hat marketplaces**

Farooqi, S., Ikram, M., Irfan, G., De Cristofaro, E., Friedman, A., Jourjon, G., Kaafar, M. A., Shafiq, M. Z. & Zaffar, F., 7 May 2015, (Submitted) In : *arXiv e-prints*. 1505.01637.

#### **Combating fraud in online social networks: detecting stealthy Facebook like farms**

Ikram, M., Onwuzurike, L., Farooqi, S., De Cristofaro, E., Friedman, A., Jourjon, G., Kaafar, M. A. & Shafiq, M. Z., 2015, (Submitted) In : arXiv e-prints. 13 p., 1506.00506.

#### **Power efficient clustering for wireless multimedia sensor network**

Jo, S-K., Ikram, M., Jung, I., Ryu, W. & Kim, J., 2014, In : International Journal of Distributed Sensor Networks. 10, 4, p. 1-9 9 p., 148595.

#### **Power-driven image compression in wireless sensor networks**

Jo, S., Ikram, M., Jung, I., Ryu, W. & Kim, J., 2013, In : Advanced science and technology letters. 42, p. 28-33 6 p.

#### **Service overlays**

Panitzek, K., Ikram, M. & Stein, M., 2013, *Benchmarking peer-to-peer systems: understanding quality of service in large-scale distributed systems*. Effelsberg, W., Steinmetz, R. & Strufe, T. (eds.). Berlin: Springer, p. 113-140 28 p. (Lecture Notes in Computer Science; vol. 7847).

#### **Smooth resilient service provision in large heterogeneous networks**

Panitzek, K., Ikram, M., Mühlhäuser, M. & Strufe, T., 2012, In : PIK-Praxis der Informationsverarbeitung und Kommunikation. 35, 3, p. 167-173 7 p.

#### **A simple lightweight authentic bootstrapping protocol for IPv6-based low rate wireless personal area networks (6LoWPANs)**

Ikram, M., Chowdhury, A. H., Zafar, B., Cha, H-S., Kim, K-H., Yoo, S-W. & Kim, D-K., 2009, *Proceedings of the 2009 International Conference on Wireless Communications and Mobile Computing: Connecting the World Wirelessly*. New York: Association for Computing Machinery (ACM), p. 937-941 5 p.

#### **On improved relay nodes placement in two-tiered wireless sensor networks**

Zafar, B., Mir, Z. H., Shams, S. M. S., Ikram, M., Baig, W. A., Kim, K-H. & Yoo, S-W., 2009, *MILCOM 2009-2009 IEEE Military Communications Conference*. Institute of Electrical and Electronics Engineers (IEEE), p. 1-7 7 p. 901180

#### **Route-over vs mesh-under routing in 6LoWPAN**

Chowdhury, A. H., Ikram, M., Cha, H-S., Redwan, H., Shams, S. M. S., Kim, K-H. & Yoo, S-W., 2009, *Proceedings of the 2009 international conference on wireless communications and mobile computing: connecting the world wirelessly*. New York: Association for Computing Machinery (ACM), p. 1208-1212 5 p.

#### **Survey of indexing schemes for information retrieval on flash memory based wireless sensor networks**

Redwan, H., Chowdhury, M. A. H., Ikram, M. & Kim, K-H., 2009, *Proceedings of the 2009 conference on Information Science, Technology and Applications: ISTA '09*. New York: Association for Computing Machinery (ACM), p. 14-21 8 p.

#### **(VVOF) velocity vector-based opportunistic forwarding in vehicular sensor network**

Yu, D., Ikram, M. & Ko, Y-B., 2009, *2009 9th International Symposium on Communications and Information Technology*. Institute of Electrical and Electronics Engineers (IEEE), p. 627-628 2 p.

#### **A lightweight mutual authentication scheme for mobile radio frequency identification (mRFID) systems**

Ikram, M., Chowdhury, M. A. H., Redwan, H., Koh, J-B., Kim, K-H. & Kim, D-K., 2008, *2008 IEEE International Performance, Computing and Communications Conference*. Institute of Electrical and Electronics Engineers (IEEE), p. 289-296 8 p.

#### **Secure and survivable group communication over MANET using CRTDH based on a virtual subnet model**

Chowdhury, M. A. H., Ikram, M. & Kim, K-H., 2008, *2008 IEEE Asia-Pacific Services Computing Conference*. Institute of Electrical and Electronics Engineers (IEEE), p. 638-643 6 p.

## Projects

### **OMQCSH: Optus Macquarie University Cyber Security Hub**

Kaafar, D., Schreer, B., Selvadurai, N., Wiggins, M., Sheedy, E., Cooper, A., Leung, P., Asghar, H., Ikram, M., Shevchenko, P., Berkovsky, S., Huang, Y., Harrison, N., McCombie, S., Hill, G., Bayl-Smith, P., Zhang, X., Yang, J., Modabber, S., Dras, M., Mclver, A., Middlebrook, L., Johnson, M. & Goldbarsht, D.  
2/12/16 → ...

### **MISC\_University of Michigan: Server-Side Blocking: Watching provider discrimination**

Ikram, M.

1/07/18 → 31/12/19

### **The obligation of telecommunications service providers to provide 'clean pipes'**

De Vos, M., Selvadurai, N. & Ikram, M.

1/06/20 → ...