Anirban **Basu**

Researcher in Computational Trust, Privacy, and Security

Diasta Ekoda no Mori 503, 2-20-3 Toyotama-kita, Nerima-ku, Tokyo 176-0012, Japan

(+81) 80-3315-8649 | a.basu@xtremebytes.com | https://www.anirbanbasu.com | anirbanbasu

"There is only one corner of the universe you can be certain of improving, and that's your own self." – Aldous Huxley

Summary

With more than a decade of research experience within both academia and industry, I have co-authored 70+ research papers and 25+ Japanese patents. My publications have been cited more than 1,300 times setting my overall h-index to 20 (source: Google Scholar). My current research is based on a user-empowering view of computational trust in human-machine interactions; and the role of computational trust in security and privacy. The areas of research that interest me include, but are not limited to: computational trust systems, distributed consensus, privacy and risk, privacy preserving data mining, AI safety and causal models. I like working on complex problems that require multi-disciplinary approaches. Outside research and the accompanying coding, I am keen on photography, videography and the associated travels.

Professional experience

Hitachi, Ltd.
Yokohama, Japan

Researcher — *Oct. 2018 – present*

- ***Summary:*** Researcher in computational trust systems at the Security Research Department within the Hitachi Research & Development group, which is a part of Hitachi, Ltd.

Freelancer
Tokyo, Japan

Consultant — *Aug. 2014 – present*

- ***Highlights:*** Open-source software development, web design and development, document design and photography.

KDDI Research, Inc.
Fujimino, Japan

Researcher Engineer — *May. 2013 – Apr. 2018*

- ***Highlights:*** Within the Information Security Laboratory, worked on (a) a multi-institutional EUR 3M EU-Japan Horizon 2020 funded project to realise a secure data storage and privacy-preserving analytics engine over heterogeneous multi-cloud environments spanning across national borders; and (b) a Toyota ITC and KDDI Research jointly funded collaborative project with ISTI-CNR and the University of Pisa on privacy risks in trajectory data.

Tokai University
Tokyo, Japan

Post-doctoral Researcher — *Oct. 2010 – Mar. 2013*

- ***Highlights:*** Developed a privacy-preserving collaborative filtering scheme over encrypted domain and demonstrated the feasibility in real-world public cloud environments – the Google App Engine and the Amazon Elastic Beanstalk – as part of a multi-institutional JPY 500M+ Japanese government funded project on privacy-preserving data mining on the cloud.

University of Sussex
Brighton, UK

Associate Tutor (Oct. 2004 – Jan. 2010) and Research Fellow (Oct. 2008 – Sep. 2009) — *Oct. 2004 – Jan. 2010*

- ***Highlights:*** Re-developed a course module on electronic commerce technologies for the Masters degree programme funded by American Express. Worked in two (GBP 1M and GBP 1.4M) EPSRC funded research projects related to computational trust.

Freelancer
Brighton, UK

Technology consultant (Jul. 2005 – Sep. 2008; Jun. 2010 – Sep. 2010) — *Jul. 2005 – Sep. 2010*

- ***Highlights:*** Technology consultant to the University of Sussex library. Developed Java Web Services hooks for Class Calendar Ltd. Co-developed computational skills training videos for Claro Training Ltd.

University of Sussex
Brighton, UK

STEP summer intern (Jul. 2003 – Aug. 2003) and then Research Assistant — *Jul. 2003 – Sep. 2004*

- ***Highlights:*** Developed a lightweight augmented reality based visualisation technology based on backend XML-based storage as part of a €2.8M EU Framework Programme V funded project on digital cultural heritage.
- ***Award:*** Shell Technology Enterprise Programme (STEP, UK) Local Finalist.

Professional affiliations

University of Sussex
Brighton, UK

Visiting Research Fellow — *Jan. 2010 – present*

- Collaborative research with the Foundations of Software Systems (FoSS) group in the Department of Informatics.

IFIP Trust Management (IFIPTM)
Tokyo, Japan

Publicity Chair (Jun. 2010 – Jun. 2015) and Secretary (Jun. 2015 – present) — *Jun. 2010 – present*

- Contributing to the IFIP Working Group 11.11 – Trust Management (IFIPTM), the premier venue on computational trust management research.

Rutgers University
Newark, NJ, USA

Visiting Research Fellow — *Oct. 2014 – Sep. 2017*

- Collaborative research with Prof. Jaideep Vaidya at the Rutgers Business School.

Education

University of Sussex — *Brighton, UK*

Doctor of Philosophy (D.Phil.) in Computer Science and Artificial Intelligence — *Oct. 2004 – Feb. 2010*

- ***Supervisors:*** Prof. Ian Wakeman and Dr. Dan Chalmers.
- ***Examiners:*** Dr. Des Watson (University of Sussex) and Prof. David Parish (Loughborough University)
- ***Doctoral thesis:*** 'A Reputation Framework for Behavioural History' proposed a high-level, generalised, policy-independent and context-aware framework to build and share reputations of network clients based on their behavioural history in order to inform future interactions. PDF: `https://www.anirbanbasu.com/files/thesis-dphil2010.pdf`.

University of Sussex — *Brighton, UK*

Bachelor of Engineering (B.Eng.) in Computer Systems Engineering — *Oct. 2001 – Jun. 2004*

- ***Grade:*** First Class Honours.
- ***Awards:*** (1) IEE Sussex Branch local prize for Outstanding Performance in Computer Systems Engineering (B.Eng.); and (2) the Eurotherm company prize for Best Electrical, Electronic or Computer Systems Engineering project.
- ***Final year project:*** 'ARCOLite – a visualisation system for viewing museum artefacts' presented a lightweight XML-based repository and a desktop visualisation in both virtual and augmented reality. PDF: `https://www.anirbanbasu.com/files/thesis-beng2004.pdf`.

Accolades

Invited talks

2018	**World Wide Web Foundation**, Privacy – connecting the dots	*London, UK*
2017	**IFIP TM – Doctoral Symposium**, Homomorphic Encryption – an answer to privacy?	*Göteborg, Sweden*
2015	**Kyushu University – Next Generation Cryptography**, Homomorphic Encryption – are we there yet?	*Fukuoka, Japan*
2012	**CSA – SecureCloud**, Practical privacy using homomorphic encryption – a myth or reality	*Frankfurt, Germany*

Awards

2004	**IEE Sussex Branch local prize**, for Outstanding Performance in Computer Systems Engineering (B.Eng.)	*Brighton, UK*
2004	**Eurotherm company prize**, for Best Electrical, Electronic or Computer Systems Engineering project	*Brighton, UK*
2003	**Local Finalist**, Shell Technology Enterprise Programme (STEP)	*Brighton, UK*

Scholarships

2004	**Graduate Teaching Assistantship (2004–2007)**, Department of Informatics (University of Sussex)	*Brighton, UK*
2001	**Dean's Bursary (2001–2004)**, Department of Engineering and Design (University of Sussex)	*Brighton, UK*

Publications

A reverse chronological list of my publications is available at: `https://www.anirbanbasu.com/files/publications-by-year.pdf`.

Research papers

Selected publications

[1] A. Al Omar, M. Z. A. Bhuiyan, **A. Basu**, S. Kiyomoto, and M. S. Rahman, "Privacy-friendly platform for healthcare data in cloud based on blockchain environment," *Future Generation Computer Systems*, 2019.

[2] **A. Basu**, M. S. Rahman, R. Xu, K. Fukushima, and S. Kiyomoto, "VIGraph – A Framework for Verifiable Information," in *Proceedings of the IFIP WG 11.11 International Conference on Trust Management (IFIPTM)*, Göteborg, Sweden, 2017, pp. 12–20.

[3] **A. Basu**, A. Monreale, R. Trasarti, J. C. Corena, F. Giannotti, D. Pedreschi, S. Kiyomoto, Y. Miyake, and T. Yanagihara, "A risk model for privacy in trajectory data," *Journal of Trust Management*, vol. 2, no. 1, pp. 1–23, 2015.

[4] J. Vaidya, I. Yakut, and **A. Basu**, "Efficient Integrity Verification for Outsourced Collaborative Filtering," in *Proceedings of the IEEE International Conference on Data Mining (ICDM)*, Shenzhen, China, 2014.

[5] **A. Basu**, J. Vaidya, H. Kikuchi, and T. Dimitrakos, "Privacy-preserving collaborative filtering on the cloud – practical implementation experiences," in *Proceedings of the IEEE Cloud*, Santa Clara, CA, USA, 2013.

[6] **A. Basu**, S. Fleming, J. Stanier, S. Naicken, I. Wakeman, and V. K. Gurbani, "The state of peer-to-peer network simulators," *ACM Computing Surveys*, vol. 45, no. 4, pp. 46:1–46:25, 08 2013.

Patents and public information (total 27)

WIPO Patentscope publication numbers

2019176264, 2019174995, 2019121946, 2019075619, 2018195907, 2018195154, 2018136625, 2018136626, 2018136627, 2018124513, 2018124924, 2018022258, 2017183932, 2017059872, 2017037180, 2016167705, 2016052047, 2016025563, 2016009243, 2015210795, 2015176496, 2015148907, 2015127859, 2015095671, 2015069350, 2015041863, 2015014958.

Skills

Computing skills — *OS:* MacOS, Windows, Linux, UNIX; *Documents:* MS Office, Google Docs and LaTeX; *Software development:* Java, C#, Objective-C, C++, Visual C++, C, Visual Basic, XML, Javascript, UML, Subversion, Git, JUnit, Ant, Maven, MySQL, JBoss, Tomcat, Google App Engine, Amazon Elastic Beanstalk. (***Non-exhaustive list.***)

Languages — English (fluent), Bengali (native), Japanese (intermediate), Hindi (elementary)