Anirban **Basu**

Researcher in Computational Trust, Privacy, and Security

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"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 30+ Japanese patents. My publications have been cited more than 2,200 times setting my overall h-index to 23 (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, trust and AI, distributed consensus, privacy and risk, and privacy preserving data mining. 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

Senior Researcher (Apr. 2021 – present) and Researcher (Oct. 2018 – Mar. 2021); Lecturer (Apr. 2022 – present) at Hitachi Academy
Oct. 2018 – present

- ***Summary:*** Researcher, working on several research projects involving computational trust within the Hitachi Research & Development group. Also teaching about trust through Hitachi Academy.

Freelancer
Tokyo, Japan

Consultant
Aug. 2014 – present

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

KDDI Research
Fujimino, Japan

Research Engineer
May. 2013 – Apr. 2018

- ***Highlights:*** Worked on a number of private and government funded projects on privacy, trust and security. Generated 30+ research publications and around 20 patents.

Tokai University
Tokyo, Japan

Post-doctoral Researcher
Oct. 2010 – Mar. 2013

- ***Highlights:*** Worked on a multi-institutional government funded JPY 500M+ project on privacy-preserving collaborative filtering.

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 (Jun. 2010 – Sep. 2010; Jul. 2005 – Sep. 2008)
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

Research Assistant (Sep. 2003 – Sep. 2004) and STEP UK summer intern (Jul. 2003 – Aug. 2003)
Jul. 2003 – Sep. 2004

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

Professional affiliations

OntarioTech University
Oshawa, Canada

Adjunct Professor
Oct. 2022 – present

- Collaborative research with Dr. Peter Lewis and Dr. Stephen Marsh within the Faculty of Business and Information Technology.

University of Sussex
Brighton, UK

Honorary Research Fellow (Mar. 2020 – present) and Visiting Research Fellow (Jan. 2010 – Mar. 2020)
Jan. 2010 – present

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

IFIP Trust Management (IFIPTM)
Tokyo, Japan

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

- Contribution to the IFIP Working Group 11.11 – Trust Management (IFIPTM), a well-known 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] N. Dwyer, H. Miller-Bakewell, T. Darbyshire, **A. Basu**, and S. Marsh, "The ethical implications of using digital traces: studying explainability and trust during a pandemic," *Qualitative and Digital Research in Times of Crisis: Methods, Reflexivity, and Ethics*, p. 129, 2021.

[2] S. Marsh, T. Atele-Williams, **A. Basu**, N. Dwyer, P. R. Lewis, H. Miller-Bakewell, and J. Pitt, "Thinking about Trust: People, Process, and Place," *Elsevier Cell Patterns*, vol. 1, June 2020.

[3] **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.

[4] **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.

[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 33)

WIPO Patentscope publication numbers

2022163431, 2022102062, 2021170262, 2021089679, WO/2021/112216, 2020014056, 2019176264, 2019174995, 2019121946, 2019075619, 2018195907, 2018195154, 2018136625, 2018136626, 2018136627, 2018124924, 2018124513, 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)