

Debashis Ganguly

Curriculum Vitae

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University of Pittsburgh
Computer Science
Sennott Square
210 S. Bouquet St.
Pittsburgh, PA 15260, USA

Phone: (404) 834-5386
Email: debashis@cs.pitt.edu
Homepage: <https://people.cs.pitt.edu/~debashis>

Research Interest

My research interests are, broadly, computer architecture, heterogeneous systems, distributed computing, operating systems, and run-times. My current research is focused on developing software-hardware co-operative solutions to mitigate performance variability in consolidated heterogeneous systems, including commodity cloud infrastructures and exascale systems. However, I am interested in studying many of the system-wide challenges, like QoS resiliency, fault-tolerance, encountered when building software for large-scale distributed systems.

Education

Doctor of Philosophy Spring, 2015 – Fall, 2020
Master of Science Spring, 2015 – Summer, 2020
Computer Science
School of Computing and Information
University of Pittsburgh
GPA: 3.875/4.0

Post Graduate Diploma In Business Administration August, 2010 – July, 2012
Symbiosis Centre for Distance Learning
GPA: 75.62%(A+)

Bachelor of Technology August, 2005 – August, 2009
Computer Science & Engineering
West Bengal University of Technology
GPA: 9.09/10.0

Employment

Industry Affiliation

Apple, Inc. Nov, 2020 – Present
Software and Hardware Modeling Engineer (ICT3)
IMG GPU - GPU SW - Silicon Development Team

Advanced Micro Devices, Inc. Jan, 2020 – April, 2020
Research Intern

Alibaba Group May, 2019 – August, 2019
Research Intern
Alibaba Cloud Intelligence Business Group

PricewaterhouseCoopers Pvt. Ltd.
Senior Consultant

September, 2012 – December, 2014

Infosys Ltd.
Senior Software Engineer

November, 2009 – August, 2012

Research and Teaching Experience

Graduate Student Researcher
Computer Science
University of Pittsburgh

Spring, 2016 – Fall, 2020

Teaching Assistant
Computer Science
University of Pittsburgh

Spring, Fall, 2015

Student Researcher
Electronic and Communication Sciences Unit
Indian Statistical Unit, Kolkata

September, 2009 – December, 2009
January, 2009 – April, 2009

Academic Awards and Honors

Winner Graduate Research Competition
Winner Graduate Poster Competition
Computer Science Day
University of Pittsburgh

March, 2017

Arts and Sciences Fellowship
The Dietrich School of Arts and Sciences
University of Pittsburgh

Fall, 2015

2nd Best Paper
41st National Annual Convention and Paper Presentation Contest
Computer Society of India

November, 2006

Publications

Book

Network and Application Security: Fundamentals and Practices; ISBN 978-1-57808-755-6; Science Publishers, Enfield, New Hampshire and CRC Press, Taylor & Francis Group

Summary

Patent Application: 2
Journal Publication: 11
Conference Publication: 16
Workshop Publication: 3
Citations: 327
h-index: 9
i10-index: 8

Patents

- [P2] Debashis Ganguly, Rami Melhem, Ziyu Zhang, Jun Yang, *Method and Apparatus for Replacing Data from Near to Far Memory over a Slow Interconnect for Oversubscribed Irregular Applications*, Int'l. Appl. No. PCT/US2020/028696, [Filed].
- [P1] Debashis Ganguly, Rami Melhem, Ziyu Zhang, Jun Yang *Method and Apparatus for Adaptive Page Migration and Pinning for Oversubscribed Irregular Applications*, Int'l. Appl. No. PCT/US2020/028717, [Filed].

Graduate Publications

- [C5] Debashis Ganguly, Rami Melhem, Jun Yang, *An Adaptive Framework for Oversubscription Management in CPU-GPU Unified Memory*, 2021 Design, Automation & Test in Europe Conference & Exhibition (DATE 2021), February 2020.
- [C4] Debashis Ganguly, Ziyu Zhang, Jun Yang, Rami Melhem, *Adaptive Page Migration for Irregular Data-intensive Applications under GPU Memory Oversubscription*, The 34th IEEE International Parallel and Distributed Processing Symposium (IPDPS 2020), May 2020.
- [C3] Debashis Ganguly, Ziyu Zhang, Jun Yang, Rami Melhem, *Interplay between Hardware Prefetcher and Page Eviction Policy in CPU-GPU Unified Virtual Memory*, The 46th International Symposium on Computer Architecture (ISCA 2019), June 2019.
- [C2] Debashis Ganguly, Mohammad H. Mofrad, Taieb Znati, Rami Melhem, John R. Lange, *Harvesting Underutilized Resources to Improve Responsiveness and Tolerance to Crash and Silent Faults for Data-intensive Applications*, IEEE International Conference on Cloud Computing (CLOUD), June 2017.
- [C1] Debashis Ganguly, Mohammad H. Mofrad, and Adriana Kovashka, *Detecting Sexually Provocative Images*, In Proceedings of IEEE Winter Conference on Applications of Computer Vision (WACV), March 2017.
- [W3] Debashis Ganguly, John R. Lange, *The Effect of Asymmetric Performance on Asynchronous Task Based Runtimes*, International Workshop on Runtime and Operating Systems for Supercomputers (ROSS 2017), June 2017.
- [W2] Debashis Ganguly, William Garrison, David Wilkinson, Bruce Childers, Adam Lee, and Daniel Mosse, *Demo: Composing, Reproducing, and Sharing Simulations*, In Proceedings of 4th Workshop on Sustainable Software for Science: Practice and Experiences (WSSSPE4), September 2016.
- [W1] Debashis Ganguly, William Garrison, David Wilkinson, Bruce Childers, Adam Lee, and Daniel Mosse, *Composing, Reproducing, and Sharing Simulations*, Workshop on Modeling & Simulation of Systems and Applications (ModSim), August 2016.

Undergraduate Publications

- [J11] Debnath Bhattacharyya, Samir Kumar Bandyopadhyay, Poulami Das, Debashis Ganguly and Swarnendu Mukherjee, *Statistical Approach for Offline Handwritten Signature Verification*, Journal of Computer Science, Science Publications, New York, USA, March 1, 2008, Volume 4, Issue 3, pp. 181-185.
- [J10] Debnath Bhattacharyya, Poulami Das, Debashis Ganguly, Swarnendu Mukherjee, Samir Kumar Bandyopadhyay, Tai-hoon Kim, *A Secured Delivery Scheme for Images*, International Journal of Control and Automation (IJCA), A publication of Science and Engineering Research Support Center, December, 2008, Vol. 1, No. 1, pp. 35-42.
- [J9] Debnath Bhattacharyya, Poulami Das, Kheyali Mitra, Debashis Ganguly, Purnendu Das, Samir Kumar Bandyopadhyay, Tai-hoon Kim, *Unstructured Documents Categorization: A Study*, International Journal of Signal Processing, Image Processing and Pattern Recognition (IJSIP), A publication of Science and Engineering Research Support Center, December, 2008, Vol. 1, No. 1, pp. 55-62.

- [J8] Swarnendu Mukherjee, Debashis Ganguly, Swarnendu Bhattacharya and Partha Mukherjee, *A Cognitive Study on DNA Based Computation*, International Journal of Recent Trends in Engineering (IJRTE 2009), May 2009, Academy Publisher, Finland.
- [J7] Swarnendu Mukherjee, Debashis Ganguly and Somnath Naskar, *A New Generation Cryptographic Technique*, International Journal of Computer Theory and Engineering (IJCTE 2009), June 2009, IAC-SIT, Singapore, Vol. 1, No. 2, pp. 284-287.
- [J6] Debnath Bhattacharyya, Poulami Das, Debashis Ganguly, Swarnendu Mukherjee, S. K. Bandyopadhyay and Tai-hoon Kim, *A Secured Technique for Image Data Hiding*, Communications in Computer and Information Science, Springer, June, 2009, Vol. 29, pp. 151-159.
- [J5] Debnath Bhattacharyya, Poulami Das, Debashis Ganguly, Kheyali Mitra, Purnendu Das, S. K. Bandyopadhyay and Tai-hoon Kim, *In search of Unstructured Documents Categorization*, Communications in Computer and Information Science, Springer, June, 2009, Vol. 27.
- [J4] Debnath Bhattacharyya, Poulami Das, Debashis Ganguly, Kheyali Mitra, Swarnendu Mukherjee, S. K. Bandyopadhyay and Tai-hoon Kim, *A Heuristic Approach for Designing Regional Language Based Raw-Text Extractor and Unicode Font-Mapping Tool*, Communications in Computer and Information Science, Springer, August, 2009, Vol. 28, pp. 1-12.
- [J3] Debnath Bhattacharyya, Kheyali Mitra, Minkyu Choi, Roslin J.Robles, and Debashis Ganguly, *An Approach of XML-ifying the Crude Corpus in the Field of Opinion Mining*, International Journal of Grid and Distributed Computing, Vol. 2, No. 3, September, 2009, pp. 13-24.
- [J2] Debashis Ganguly, Srabonti Chakraborty, Tai-hoon Kim, *A Cognitive Study on Medical Imaging*, International Journal of Bio-Science and Bio-Technology, Vol. 2, No. 3, September, 2010, pp. 1-18.
- [J1] Swarnendu Mukherjee, Debashis Ganguly, Partha Mukherjee and Prasenjit Mitra, *A Novel Technique for Copyright Protection of Images Using Hybrid Encryption Model*, I. J. Modern Education and Computer Science, Vol. 4, No. 5, June, 2012, pp. 10-17.
- [C11] Debashis Ganguly, Swarnendu Mukherjee, Mohit Mundhra, *Digital Watermarking: A New Approach* (Awarded), 41st National Convention of Computer Society of India, 21 - 23 November 2006, paper. 11.
- [C10] Samir Kumar Bandyopadhyay, Debnath Bhattacharyya, Debashis Ganguly and Swarnendu Mukherjee, Poulami Das, *A tutorial review on Steganography*, International Conference on Contemporary Computing (IC3-2008), Noida, India, August 7-9, 2008, pp. 105-114.
- [C9] Samir Kumar Bandyopadhyay, Debnath Bhattacharyya, Debashis Ganguly and Swarnendu Mukherjee, Poulami Das, *Padding and Zonal Substitution Scheme for Image Watermarking*, International Conference on Contemporary Computing (IC3-2008), Noida, India, August 7-9, 2008, pp. 122-127.
- [C8] Samir Kumar Bandyopadhyay, Debnath Bhattacharyya, Debashis Ganguly and Swarnendu Mukherjee, Poulami Das, *A Secure Scheme for Image Transformation*, Ninth IEEE ACIS International Conference on Software Engineering, Artificial Intelligence, Networking, and Parallel/Distributed Computing (ACIS-SNPD 2008), Phuket, Thailand, August 6-8, 2008, pp. 490-493.
- [C7] Debnath Bhattacharyya, Poulami Das, Kheyali Mitra, Debashis Ganguly, Swarnendu Mukherjee, Samir Kumar Bandyopadhyay and Tai-hoon Kim, *A Novel Approach for Refinement of Corpus in the Field of Opinion Mining*, IEEE International Conference on Future Networks (IEEE ICFN-2009), 7-9 March 2009, Bangkok, Thailand, pp. 281-285.
- [C6] Debnath Bhattacharyya, Poulami Das, Swarnendu Mukherjee, Debashis Ganguly, Samir Kumar Bandyopadhyay and Tai-hoon Kim, *A Multi Layer Security Model for Text Messages*, IEEE International Advanced Computing Conference (IACC 2009), 6-8 March 2009, Patiala, India, pp. 697 - 702.

- [C5] Debnath Bhattacharyya, Poulami Das, Debashis Ganguly, Swarnendu Mukherjee, Kheyali Mitra, Samir Kumar Bandyopadhyay and Tai-hoon Kim, *A Novel Approach For Designing Indian Regional Language Based Raw-Text Extractor and Unicode Font-Mapping Tool*, IEEE International e-Conference on Advanced Science and Technology (AST 2009), 7-9 March 2009, Korea.
- [C4] Debashis Ganguly, Swarnendu Mukherjee, Somnath Naskar and Partha Mukherjee, *A Novel Approach for Optimal Number of Clusters*, IEEE International Conference on Computer and Automation Engineering (ICCAE 2009), 8-10 March 2009, Bangkok, pp. 113-118.
- [C3] Debashis Ganguly, Swarnendu Mukherjee, Kheyali Mitra and Partha Mukherjee, *A Novel Approach for Edge Detection of Images*, IEEE International Conference on Computer and Automation Engineering (ICCAE 2009), 8-10 March 2009, Bangkok, pp. 49 - 53.
- [C2] Debnath Bhattacharyya, Poulami Das, Debashis Ganguly, Swarnendu Mukherjee, Kheyali Mitra, S. K. Bandyopadhyay, Tai-hoon Kim, *Refine Crude Corpus for Opinion Mining*, International Conference on Computational Intelligence, Communication Systems and Networks (CICSyN 2009), 23-25 July, 2009, Indore, India, pp. 17-22.
- [C1] Debashis Ganguly, Srabonti Chakraborty, Maricel Balitanas and Tai-hoon Kim, *Medical Imaging: A Review*, Security-Enriched Urban Computing and Smart Grid, First International Conference (SUCoS 2010), September 15-17, 2010, Daejeon, Korea, pp. 504-516.