Sounak Gupta

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Education

- **University of Cincinnati** — Cincinnati, Ohio
  Ph.D. in Computer Science and Engineering — *Aug 2012 – present*
  - My focus is design and performance enhancement of scalable multi-threaded event scheduler in MPI-based Parallel Discrete Event Simulator running on multi-core clusters.
  - Simulation Kernel : https://github.com/wilseypa/warped2
  - Benchmark Models : https://github.com/wilseypa/warped2-models

- **Bengal Engineering and Science University, Shibpur** — Howrah, India
  (now Indian Institute of Engineering Science and Technology)
  B.E. (Honors) in Information and Communication Engineering — *Aug 2005 – Jun 2009*
  - Senior Design Project : FPGA soft-core for baseline JPEG in medical domain

Work Experience

- **Software Engineer at Polaris Networks Inc.** — Kolkata, India
  3GPP LTE Protocol Stack developer — *Sept 2011 – Jul 2012*
  - In addition to protocol stack libraries for 3GPP LTE, I also designed and implemented PostgreSQL-based API infrastructure for scalable data management in LTE emulator.

- **Project Engineer at Wipro Ltd.** — Bengaluru, India
  Embedded Systems Developer in the Avionics Group — *Jan 2010 – Sept 2011*
  - I designed and implemented the embedded controller for cabin lights in Airbus A350 XWB aircraft.

Publications

[**Google Scholar Profile :** https://scholar.google.com/citations?user=f1v2sMgAAAAJ&hl=en]

- **S. Gupta**, and P. A. Wilsey. Quantitative Driven Optimization of a Time Warp Kernel. ACM SIGSIM-PADS 2017 (accepted)
- J Xu, BJ Hartley, P Kurup, A Phillips, A Topol, M Xu, C Ononenyi, E Foscue, S Ho, TD Baguley, N Carty, CS Barros, U Mller, **S Gupta**, D Ruderfer, P Sklar, J Rapoport, JA Ellman, C Pittenger, B Aronow, AC Nairn, MW Nestor, PJ Lombroso and KJ Brennand. Inhibition of $STEP_{61}$ ameliorates deficits in mouse and hiPSC-based schizophrenia models. Molecular Psychiatry (2016); doi:10.1038/mp.2016.163
- A Topol, JA English, E Flaherty, P Rajarajan, BJ Hartley, **S Gupta**, F Desland, S Zhu, T Goff, L Friedman, J Rapoport, D Felsenfeld, G Cagney, A Mackay-Sim, JN Savas, B Aronow, G Fang, B Zhang, D Cotter and KJ Brennand. Increased abundance of translation machinery in stem cell-derived neural progenitor cells from four schizophrenia patients. Translational Psychiatry (2015) 5, e633; doi:10.1038/tp.2015.118
- **S. Gupta**, and P. A. Wilsey. Lock-Free Pending Event Set Management in Time Warp. In Proceedings of the 2nd ACM SIGSIM/PADS conference on Principles of Advanced Discrete Simulation (SIGSIM-PADS '14), 15-26.
- T. Dickman, **S. Gupta**, and P. A. Wilsey. Event pool structures for PDES on many-core Beowulf clusters. In Proceedings of the 2013 ACM SIGSIM conference on Principles of Advanced Discrete Simulation (SIGSIM-PADS '13), 103-114.
- **S. Gupta** and G. Paul. Revisiting Fermat's Factorization for the RSA Modulus. arXiv:0910.4179 [cs.CR].

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Research Experience

- **Graduate Research Assistant**
  University of Cincinnati *Aug 2012 – May 2014, Oct 2015 – Aug 2016*
  - Event scheduler design in a Parallel Discrete Event Simulator ; Research funded by NSF and AFOSR ; P.I. : Dr. Philip Wilsey
- **Graduate Assistant**
  Cincinnati Children's Hospital Medical Center *Sept 2014 – Oct 2015*
  - Automated multi image/multi-channel morphological feature extraction from neural confocal images for a study on Schizophrenia. Codebase publicly shared on `https://github.com/guptask`. P.I. : Dr. Bruce J. Aronow
- **Research Assistant**
  Bengal Engineering and Science University, Shibpur *Aug 2009 – Jan 2010*
  - I worked on mathematical modelling of asynchronous CA-LFSR circuit for early prediction of PRNG cycle length. Funding Agency : UGC, India ; P.I. : Dr. Biplab K. Sikdar

Teaching Experience

- Lecturer for undergraduate Computer Architecture/Organization course in Summer 2017
- TA for graduate and undergraduate Operating Systems course in Fall 2016 and Spring 2017
- Instructor for freshman C++ programming lab in Spring 2013

Peer-reviewer

- ACM SIGSIM-PADS 2017, IEEE/ACM DS–RT 2014, 2015 and SIMULTECH 2014

Honors

- Ranked second at ACM SIGSIM-PADS Ph.D. Students' Colloquium and Poster Presentation 2014
- Awarded ACM SIGSIM Travel Grant in 2014
- University Graduate Scholarship (Fall 2012 – present) at University of Cincinnati

Skills

- Fluent in C, C++ ; working knowledge of Python, R, SQL and VHDL ; experience in building large software systems.
- Packages familiar with :
  - Linux : OpenCV 2, MPICH 2, openMPI (IBoE support), Metis, GCC toolchain, Autotools, PostgreSQL, git, Octave, Clang, LLVM
  - Windows : MySQL, MATLAB, Simulink
- Familiar with Intel x86-64, Raspberry Pi, Xilinx Virtex 5 FPGA, Transactional Memory-HLE, AVX2 instruction set, Xeon Phi Co-processor cross-compilers and ARM big.LITTLE platforms
- Coursework : Computer Architecture, Compiler Theory, Embedded Systems/RTOS, Database Management Systems, Complex Systems, Intelligent Systems and Machine Learning, Pattern Recognition, Linear Systems, Cryptography, Operating Systems, Data Structures and Advanced Algorithms, Networking and Distributed and Parallel Systems.