Iftikhar A. Burhanuddin *Curriculum Vitae*

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Objective

· To apply the skill-set acquired during my teaching and research experience to software development and project management. This setting will provide an ideal ground for the development of ideas and products which will stand to benefit the company.

Education

· **University of Southern California**, Los Angeles, USA.
  – Ph.D. in Computer Science, January 2002 – August 2007. *Some computational problems motivated by the Birch and Swinnerton-Dyer Conjecture.* Advisors: Ming-Deh A. Huang and William Stein.
  – M.S. in Computer Science, May 2005.

· **Birla Institute of Technology and Science**, Pilani, India.
  – B.E. (Hons.) in Computer Science, 1999.

Employment

· **University of California, Los Angeles**, USA:
  – PIC (Program in Computing) Assistant Adjunct Professor, Mathematics Department, July 2007 – present.

· **University of Southern California**, Los Angeles, USA:
  – Teaching Assistant, Mathematics Department, August 2000 – May 2001.
  – Teaching and Research Assistant, Computer Science Department, January 2002 – June 2007.

· **Yianilos Labs**, Princeton, USA:
  – Intern, May – August 2001.

  The internship involved a study of certain aspects of Samba such as Samba's virtual file system interface and Samba benchmarking. Samba is an open source and free software that re-implements the SMB/CIFS networking protocol.

· **Honeywell Technology Solutions Lab**, Bangalore, India:
  – Software Engineer, July 1999 – June 2000.
  – Intern, July – December 1998.

  Was part a team that developed Visual C++ monitoring tools for Honeywell proprietary protocols for communication between microprocessor based control devices used in the home environment.

Technical Skills

· Contributor to Sage – Open Source Mathematics Software. Scripts, feedback on design, posting bugs, talks. `http://sagemath.org/`.

· Experience with
  – Languages: C, Visual C++, Python.

Professional Services

· Co-organizer *Workshop: Interactive Parallel Computation in Support of Algebra, Geometry and Number Theory*, MSRI, Berkeley, January 29 - February 2, 2007 with Demmel, J.; Goins, E.; Kaltofen, E.; Perez, E.; Stein, W.; Verrill, H.; Weening, J.
`http://modular.math.washington.edu/msri07`

· Co-organizer *UCLA Number Theory Seminar*, October 2007 – June 2008.
`http://www.math.ucla.edu/~ntg/past_seminars.html`

· Webmaster *Number Theory Group at UCLA* webpage, October 2007 – June

2008.
http://www.math.ucla.edu/~ntg

Publications

1. *Deciding whether the p-torsion group of the $\mathbb{Q}_p$-rational points of an elliptic curve is non-trivial*, with Ming-Deh A. Huang. ANTS VI Poster Abstracts, SIGSAM Bulletin, Volume 38, No. 3, September 2004, Issue 149, 96–98.
2. *Elliptic curve torsion points and division polynomials*, with Ming-Deh A. Huang. Computational Aspects of Algebraic Curves, T. Shaska (Ed.), Lecture Notes Series on Computing, **13** (2005), 13–37, World Scientific.

Selected Projects/Preprints in progress

1. *Two-dimensional modulo 7 Galois representations arising from elliptic curves over $\mathbb{Q}$*, with Luis Dieulefait.

Technical Reports

1. *Computing rational torsion on elliptic curves in linear time* with Ming-Deh A. Huang. USC Computer Science Technical Report 04-824.
2. *On computing rational torsion on elliptic curves* with Ming-Deh A. Huang. USC Computer Science Technical Report 05-842.
3. *Factoring integers and computing elliptic curve rational points* with Ming-Deh A. Huang. USC Computer Science Technical Report 06-875.

Class Notes

1. *Introduction to Cryptography* with Ming-Deh A. Huang, Fall 2002. http://www-scf.usc.edu/~burhanud/cs556.html.
2. *Curve Based Cryptography*, with Ming-Deh A. Huang, Spring 2002. http://www-scf.usc.edu/~burhanud/cs599.html.

Teaching

· *Instructor*. Program in Computing, Department of Mathematics, University of California, Los Angeles. Responsibilities include lecturing, making lecture audio available and setting exams.
  – PIC 60 Data Structures and Algorithms. Fall 2007, Fall 2008.
  – PIC 10a Introduction to Programming. Winter 2008, Winter 2009, Fall 2009.
  – PIC 10b Intermediate Programming. Spring 2009.
  – MATH 32a Calculus of Several Variables. Spring 2009.
  – MATH 116 Mathematical Cryptology. Winter 2009.

· *Teaching Assistant*. Department of Mathematics, University of Southern California. Responsibilities included holding discussion sessions, setting and grading quizzes, and grading exams.
  – MATH 117 Mathematics for Business students. Fall 2000.
  – MATH 116 Mathematics for Social Sciences. Spring 2001.

· *Teaching Assistant*. Department of Computer Science, University of Southern California. Responsibilities included holding review sessions, making homework solutions, grading quizzes and exams, and occasionally filling in for the professor.

– CSCI 271 Discrete Methods in Computer Science. Spring, Fall 2002.

– CSCI 570 Analysis of Algorithms. Summer, Fall 2003, Spring, Summer, Fall 2004, Spring, Fall 2005, Spring, Fall 2006.

· *Grader*. Department of Computer Science. Responsibilities included making homework solutions, grading homework and exams, and occasionally filling in for the professor.

– CSCI 556 Cryptography. Fall 2001, Fall 2002.

– CSCI 303 Algorithms. Spring 2002.

Talks

· *On Computing Discrete Logarithms in Formal Groups and its Applications*

– ACA: Applications of Computer Algebra, North Carolina State University, Raleigh, July 28, 2003

– MNTCG: Midwest Number Theory Conference for Graduate Students and Recent PhDs, University of Wisconsin, Madison, October 25, 2003

– MPKC: Mathematics of Public Key Cryptography 2003, University of Illinois, Chicago, November 7, 2003

– Algebra Seminar, USC, Los Angeles, December 1, 2003

– Seminar/Colloquia, The Institute of Mathematical Sciences, Chennai, India, January 2, 2004

– Theory group seminar, Indian Institute of Technology, Chennai, India, January 7, 2004

· *Computing rational torsion on elliptic curves in linear time*

– WCAG: Workshop on Computational Arithmetic Geometry, PIMS, Simon Fraser University, Burnaby, Canada, July 6, 2004

– ACA 2004: Applications of Computer Algebra, Beaumont, Texas, July 20, 2004

· *Algorithms for computing elliptic curve rational torsion.* Conference on Computational Aspects of Algebraic Curves University of Idaho, Moscow, Idaho, May 27, 2005

· *Some computational problems motivated by the BSD conjecture*

– Seminar/Colloquia, The Institute of Mathematical Sciences, Chennai, India, January 12, 2006

– Number Theory Seminar, UCLA, Los Angeles, March 6, 2006

– Graduate Student Colloquium, USC, Los Angeles, April 19, 2006

· *Factoring integers and computing elliptic curve rational points.* SAGE Days 1, University of California, San Diego, February 5, 2006

· *Heegner Point Computation* with David Brown, Wei Ho, Joseph Rabinoff and Patrick Rault. AWS 2006 University of Arizona, Tucson, March 15, 2006

· *Mestre's Method of Graphs.* MSRI 2006: Computing with Modular Forms MSRI, Berkeley, August 11, 2006

· *Computing Elliptic Curve Rational Torsion and SAGE.* SAGE Days 2, University of Washington, Seattle, October 7, 2006

· *Brauer-Siegel Analogue for Elliptic Curves over the Rationals.* Explicit methods for rational points on curves, BIRS, Banff, Canada, February 4-9, 2007

· *Some Computational Problems Motivated by the Birch and Swinnerton-Dyer Conjecture*

– Doctoral thesis defense, University of Southern California, Los Angeles, May 3, 2007

– Number Theory Seminar, California Institute of Technology, Pasadena, January 17, 2008

Conferences attended

· Over two dozen conferences and workshops attended. For a complete list see http://www.math.ucla.edu/~burhanud/travel.html.

Grants

· Travel grants to attend conferences in Australia, Canada, France and within USA awarded by the organizers.

Affiliations

· International Honor Society for Computer Sciences, UPE.

Awards

· Best Teaching Assistant, Computer Science, University of Southern California, Fall 2003.

· Award for securing the 26th rank out of 300,000 students who appeared for the Higher Secondary Examinations in 1995 by the State Government of Tamil Nadu, India.

Volunteering

· Upward Bound House, Santa Monica, USA. June – August 2008.
Served lunch to senior citizens three times a week.

Personal

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