Shreepriya Das

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Research Interests

Computational Biology/Bioinformatics
Signal Processing
Machine Learning

Education

Brigham and Women's Hospital and Harvard Medical School, Boston, MA, USA

Postdoctoral Research Fellow, Department of Medicine, Division of Genetics, Oct 2015 - Mar 2017

The University of Texas at Austin, Austin, Texas USA

Ph.D., Electrical and Computer Engineering, August 2015

- Dissertation Topic: "Algorithms for Next Generation Sequencing Data"
- Advisor: Dr. Haris Vikalo

M.S.E., Electrical and Computer Engineering, May 2012

Indian Institute of Technology, Kharagpur, INDIA

B.Tech., Electronics and Electrical Communication Engineering, May, 2007

Honors and Awards

Travel Grant, GENSIPS 2014

Microelectronics and Computer Development Fellowship awarded by University of Texas at Austin 2007- 2009

Bidhan Chandra Roy Memorial Gold Medal awarded by IIT Kharagpur to the Best Outgoing Allrounder 2007

Jagadis Bose National Science Talent Search Scholar 2003 -2007

Ranked 115 in the All India IIT Joint Entrance Examination, 2003

Internship

The University of Washington at Seattle, Seattle, Washington USA Summer 2006
Advisor: Prof David Allstot
Worked on Sigma-Delta Modulators

Academic Experience

The University of Texas at Austin, Austin, Texas USA

Graduate Research Assistant **Fall, 2009 - Summer 2015**
Includes current Ph.D. research, Ph.D. and Masters level coursework and research projects.

Teaching Assistant **Fall, 2009 - Spring 2010**
Duties at various times have included office hours and leading weekly lab exercises.

Guest Lecturer **Spring, 2014**
Guest Lecturer for the course "Genomic Signal Processing"

BOOK CHAPTERS

- S. Das, H. Vikalo, and A. Hassibi, Affinity-Based Biosensors: Stochastic Modeling and Figures of Merit, in CMOS Biomicrosystems: Where Electronics Meet Biology, Wiley, 2011.

PUBLICATIONS

J8 Fonseka C et al. "A Single Cell Disease Association Study Reveals a CD4+ Effector Memory T Cell Population Expanded in Rheumatoid Arthritis" to be submitted. Nature Methods. 2017

J7 Westra HJ et al. "Fine-mapping identifies RA and T1D functional causal variants in DNASE1L3, CD28/CTLA4, TNFAIP3 and MEG3 loci". Submitted. Nature Genetics. 2017

J6 Barik S, Das S, Vikalo H. "Viral Quasispecies Reconstruction via Correlation Clustering". bioRxiv, 2016. Submitted - Bioinformatics

J5 Das S, Vikalo H."Optimal Haplotype Assembly via a Branch-and-Bound Algorithm. IEEE Transactions on Molecular, Biological and Multiscale Communications,", 2016.

Preliminary version in [C5] S. Das and H. Vikalo, Optimal Haplotype Assembly with Statistical Pruning, IEEE International Workshop on Genomic Signal Processing and Statistics (GENSIPS), Atlanta,GA, December 2014.

J4 S. Das and H. Vikalo, SDhaP: Haplotype Assembly for diploids and polyploids via semidefinite programming, BMC Genomics, 2015.

Preliminary version in [C4] S. Das and H. Vikalo, Single Individual Haplotyping with Low Rank Semidefinite Programming, NIPS Workshop on Machine Learning and Computational Biology, Montreal, Canada, December 2014.

J3 S. Das and H. Vikalo, Base calling for high-throughput short-read sequencing: Dynamic programming solutions, BMC Bioinformatics, vol 14:129, 2013. doi:10.1186/1471-2105-14-129

Preliminary version in [C3] S. Das and H. Vikalo, Base-calling for Illumina's next-generation sequencing via Viterbi algorithm, 49th Annual Allerton Conference on Communication, Control, and Computing, Monticello, IL, September 2011, pp. 1733-1736 (invited).

J2 S. Das and H. Vikalo, OnlineCall: Fast online parameter estimation and base calling for Illumina's next generation sequencing, Bioinformatics, vol. 28, no. 13, pp. 1677-1683, 2012.

Preliminary version in [C2] S. Das and H. Vikalo, Model-based sequential base calling for Illumina sequencing, IEEE International Workshop on Genomic Signal Processing and Statistics (GENSIPS), Cold Spring Harbor, NY, November 2010.

J1 S. Das, H. Vikalo, and A. Hassibi, On scaling laws of biosensors: a stochastic approach, Journal of Applied Physics, vol. 105, no. 10, May 2009, pp. 102021-7.

Preliminary version in [C1] S. Das, H. Vikalo, and A. Hassibi, Stochastic modeling of reaction kinetics in biosensors using the Fokker-Planck equation, in IEEE International Workshop on Genomic Signal Processing and Statistics (GENSIPS), Minneapolis, MN, 2009.

PROFFESSIONAL ACTIVITIES

Reviewer: Bioinformatics, GlobalSIP

NATIONALITY

Indian

EMPLOYMENT STATUS

OPT-STEM Extension