Avi Srivastava

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Current Research Interests

Analysis Efficient Algorithms for bulk/single-cell RNA-seq data

Uncertainty Aware Graphical Models for Transcriptomic data

Education

2014–Present **Ph.D. Candidate**, *Department of Computer Science*, Stony Brook University, New York, USA.
Advisor: Prof. Rob Patro, Research Area: Computational Biology, Machine Learning, (bio)Statistics.

2008–2012 **B.Tech.**, *Department of Computer Science*, College of Engineering Roorkee, Roorkee, India.
Advisor: Prof. Ankush Mittal, Research Area: Medical Imaging (CBIR), Parallel Computing.

Employment

Roche Sequencing Solutions, *Pleasanton, California, USA*.

2016(Summer) *Research Intern*, *Infectious Diseases Unit*.

Stony Brook university, *Stony Brook, New York, USA*.

2015–Present *Research Assistant*, *Department of Computer Science*.

2014–2015 *Teaching Assistant*, *Department of Computer Science*.

Accenture Services Pvt Ltd., *Pune, India*.

2013–2014 *Software Engineer*, *Service-Oriented Architecture Development Group*.

Publications

Published

2017 Mohsen Zakeri, **Avi Srivastava**, Fatemehalsadat Almodarresi TS, and Rob Patro, *"Improved data-driven likelihood factorizations for transcript abundance estimation"*, ISMB-17, Oxford Bioinformatics, Volume 33, Issue 14, 15 July 2017.

2016 **Avi Srivastava**, Hirak Sarkar, Laraib Malik, Rob Patro, *"Accurate, Fast and Lightweight Clustering of de novo Transcriptomes using Fragment Equivalence Classes"*, Accepted in Recomb-seq, arXiv, 2016.

2015 **Avi Srivastava**, Hirak Sarkar, Nitish Gupta, and Rob Patro, *"RapMap: A Rapid, Sensitive and Accurate Tool for Mapping RNA-seq Reads to Transcriptomes"*, ISMB-16, Oxford Bioinformatics, Volume 32, Issue 12, 15 June 2016.

2014 K Yadav, **A Srivastava**, A Mittal, MA Ansari, *"Texture-based medical image retrieval in compressed domain using compressive sensing"*, International journal of bioinformatics research and applications, Vol.10, No.2, 2014.

2013 K Yadav, **A Srivastava**, A Mittal, MA Ansari, *"GPU parallel implementation of B-spline non-rigid grid registration using free-form deformations"*, International Journal of Biomedical Engineering and Technology, Vol.11, No.2, 2013.

2011 K Yadav, A Mittal, MA Ansari, **Avi Srivastava**, *"Parallel Implementation of Compressed Sensing Algorithm on CUDA- GPU"*, International Journal of Computer Science and Information Security, Vol. 9 No. 3, 2011.

Invited Talks

2017 **Avi Srivastava** and Rob Patro, *"Algorithmic Advancement in Transcriptome Analyses"*, Laufer Center for Physical and Quantitative Biology-Retreat, Stony Brook, New York.

2016 **Avi Srivastava**, Hirak Sarkar, Nitish Gupta, and Rob Patro, *"RapMap: A Rapid, Sensitive and Accurate Tool for Mapping RNA-seq Reads to Transcriptomes"*, ISMB, Orlando, Florida.

Poster

2016 **Avi Srivastava**, Darya Filippova, Owen Solberg, Khai Luong, *"Understanding PacBio SMRT Sequencing consensus algorithm and possible improvements"*, Roche Sequencing Solutions, Pleasanton, California.

Open Source Softwares

Alevin (2017) **Super-fast scRNA-seq barcode, umi correction and quantification with uncertainty**.
https://github.com/k3yavi/alevin

Shoal (2016) **Improved multi-sample transcript abundance estimates using adaptive priors**.
https://github.com/COMBINE-lab/shoal

RapClust (2016) **Accurate, Fast and Lightweight Clustering of de novo Transcriptomes using Fragment Equivalence Classes**.
https://github.com/COMBINE-lab/RapClust

RapMap (2015) **A Rapid, Sensitive and Accurate Tool for Mapping RNA-seq Reads to Transcriptomes**.
https://github.com/COMBINE-lab/RapMap

Honors

2016 ISMB Student Travel Fellowship
2016 Distinguished Travel Award
2015 Best Teaching Assistant Award
2014 CS Department Chair Fellowship
2012 Best undergraduate project award

Skills

Expert Bash, C/C++(including C++11), CUDA, LaTeX, MATLAB, Python
Experience BWA, BPEL, GATB, Git, Java, OSB, Prolog, R, Samtools, Snakemake, Spacemacs(Vim+Emacs)

Teaching

Teaching Assistant

2015-Fall **CSE-537**, *Artificial Intelligence*, Department of Computer Science.
Prof. I.V. Ramakrishnan

2015-Spring **CSE-220**, *System Fundamentals II*, Department of Computer Science.
Prof. Jeniffer Wong

2014-Fall **CSE-220**, *System Fundamentals I*, Department of Computer Science.
Prof. Jeniffer Wong

Hobbies

Hiking, Kayaking, Learning to never miss a game of Liverpool