Ravi S Pandey

CONTACT
INFORMATION:

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RESEARCH
INTERESTS :

Computational Genomics, Statistical Genetics, System Biology, Evolutionary Biology, Epigenetics, NGS/RNA-seq data analysis, Metagenomics, Biostatistics, Horizontal Gene Transfer.

PROFESSIONAL
EXPERIENCE:

Postdoctoral Research Associate

Lab - Greg Carter

The Jackson Laboratory for Genomic Medicine, Farmington, CT

June 2017 - present

Graduate Teaching Assistant

Genetics lab, Department of Biological Sciences

University of North Texas, Denton, TX

January 2012 - May 2017

Graduate Teaching Assistant

Biochemistry lab, Department of Biological Sciences

University of North Texas, Denton, TX

Summer 2014 and 2015

EDUCATION :

Ph.D.(Biology) : 2011 - 17 : University of North Texas, Denton, TX

Thesis: Markov Model of Segmentationa and Clustering: Applications in Deciphering Genomes and Metagenomes

Supervisior: Dr. Rajeev K. Azad

CGPA: 4.0/4.0

M.Tech. : 2009 -11 : Jawaharlal Nehru University, New Delhi, India

Specialization: Computational and System Biology.

Thesis: Inactivation Domains in mammalian X Chromosomes: Markov Segementation Analysis

Supervisior: Prof. Ram Ramaswamy

M.S. : 2007 - 09 : Jawaharlal Nehru University, New Delhi, India

Specialization: Physics

Thesis: Synthesis and Charecterization of Nanoaggregates

Supervisior: Dr.Pritam Mukhopadhyay

B.S. : 2004 - 07 : Banaras Hindu University, Varanasi, India

Specialization: Physics

Relevant courses: Mathematics, Chemistry

PUBLICATIONS:

- Ravi Shanker Pandey, Melissa A. Wilson Sayres, and Rajeev K. Azad. *Detecting evolutionary strata on the human X chromosome in the absence of gametologous Y-linked sequences.* Genome Biol. Evol. (2013) Vol. 5 1863-1871.

- Ravi Shanker Pandey and Rajeev K. Azad. *Deciphering evolutionary strata on plant sex chromosomes and fungal mating-type chromosome through compositional segmentation* Plant Mol. Biol. (2016) Vol. 90, Issue 4, pp 359-373.

- Ravi Shanker Pandey Garima Saxena, D. Bhattacharya, H. Qiu and Rajeev K. Azad. *Using complementary approaches to identify trans-domain nuclear gene transfers in the extremophile Galdieria sulphuraria (Rhodophyta).* J Phycol.(2016) doi: 10.1111/jpy.12466.

- Ravi Shanker Pandey, David Burks and Rajeev K. Azad. *Towards more robust metagenome profiling* (Submitted).

- Megan N. Fitch, JoAnn Lucero, Yan Zhang, Karly Flemmons, **Ravi S. Pandey**, June Liu, Jeremy Brower, Michael S. Allen, Matthew J. Campen, Jacob D. McDonald, Amie K. Lund. *Effects of Inhaled Air Pollution on the Integrity, Inflammation, and Microbiome Profiles of the Intestines in Apolipoprotein E Knockout Mice* (Submitted).

ORAL PRESENTATIONS:

- Ravi Shanker Pandey and Rajeev K. Azad. *Deciphering evolutionary strata on plant sex chromosomes and fungal mating-type chromosome through compositional segmentation.* SS-ASPB, Denton, Texas (April 2016)

- Ravi Shanker Pandey and Rajeev K. Azad. *Markov Model of Segmentation and Clustering: Application in Evolution of Genomic Sequences.* BGSA-UNT, Denton, Texas (April 2014)

- Ravi Shanker Pandey, Garima Saxena and Rajeev K. Azad. *Impact of Horizontal Gene Transfer in the Evolution of Galdieria sulphuraria 074W.*Federation Graduate Student Research Symposium 2017 at Denton, Texas.

- Ravi Shanker Pandey, David Burks and Rajeev K. Azad. *Towards more robust metagenome profiling.* ISMB 2016 at Orlando, Florida, USA.

- Ravi Shanker Pandey and Rajeev K. Azad. *Towards more robust metagenome profiling.* Biology Graduate Student Research Day, UNT Texas, April 2016.

- Ravi Shanker Pandey and Rajeev K. Azad. *Towards more robust metagenome profiling.* Federation Graduate Student Research Symposium 2016 at Denton, Texas.

- Ravi Shanker Pandey and Rajeev K. Azad. *Towards more robust metagenome profiling.*Texas Branch ASM Fall 2015 Meeting at Huntsville, Texas.

- Ravi Shanker Pandey, Garima Saxena and Rajeev K. Azad. *Impact of Horizontal Gene Transfer in the Evolution of Galdieria sulphuraria 074W.*Texas Branch ASM Spring 2015 Meeting at New Braunfels, Texas.

- Ravi Shanker Pandey and Rajeev K. Azad. *A multiple gene model framework for prokaryotic gene prediction.* Texas Branch ASM Fall 2014 Meeting at Houston, Texas.

- Ravi Shanker Pandey and Rajeev K. Azad. *Understanding plant sex chromosome evolution using an unsupervised composition-based method.* Mid-South Computational Biology and Bioinformatics Soceity (MCBIOS) at Stillwater, Oklahoma (March 2014).

- Ravi Shanker Pandey, Melissa A. Wilson Sayres, and Rajeev K. Azad. *Detecting evolutionary strata on the human X chromosome in the absence of gametologous Y-linked sequences.* Soceity Of Molecular Biology (SMBE) at Chicago (July 2013).

- **Project:** "*Biosyntehesis and Regulation of C-lignin in Cleome hasleriana*"
  Research Group: Dr. Richard Dixon and Dr. Rajeev Azad
  Department of Biological Sciences,University of North Texas, Denton-TX
  Time period: March 2016 - present.

- **Project:** ”*Study the change in gene expression of cardiac tissue over the course of embryonic development in the american alligatores and impact of low oxygen exposure on cardiac gene expression*“
  Research Group: Dr.Dane Crossley, Dr. Turk Rhen and Dr. Rajeev Azad
  Department of Biological Sciences, University of North Texas, Denton-TX
  Time period: July 2015 - December 2015

- **Poject:** ”*RNA-Seq analysis of control and experimental heart tissues from Quail's embryos*“
  Research Group: Dr. Kelly Reyna and Dr. Rajeev Azad
  UNT Quail, Department of Biological Sciences
  University of North Texas, Denton-TX
  Time period: July 2015 - 2016.

- **Project:** ”*Taxonomic profiling of human microbiome data obtained through Illumina sequencing 16S ribosomal sequences present in fecal samples before and after treatment*“
  Research Group: Dr. Brian McFarlin and Dr. Rajeev Azad
  Department of Kinesiology, Health Promotion, and Recreation
  Department of Biological Sciences
  University of North Texas, Denton-Texas
  Time period: July 2015 - 2016.

- **Project:** ”*Screening the 16S gene regions to discriminate among tick pathogens*“
  Research Group: Dr. Mike Allen and Dr. Rajeev Azad
  Center for Biosafety and Biosecurity and the Tick-Borne Disease Research Laboratory, Department of Molecular and Medical Genetics
  University of North Texas HSC at Fort Worth.
  Time period: July 2014 - September 2015.

- **Project:** ”*De-novo assembly and RNA-Seq analysis of turf grass*“
  Research Group: Dr. Paul Rushton and Dr. Rajeev Azad
  Texas AM AgriLife Research Extension Center Dallas.
  Department of Biological Sciences,University of North Texas, Denton-TX
  Time period: June 2014 - November 2015

Technical
Skills:

- **Programming language:** Perl, BioPerl, Python, Biopython, C, Unix-Shell scripting.

- **Operating systems:** Linux, Unix, Windows.

- **Technical softwares/packages**: R, Excel, Gnuplot, NCBI-Blast, RNA-seq analysis related tools like Bowtie, Tophat, Cufflinks, Trinity, MCL etc.

- Experience in developing algorithm based on mathematical models to solve biological problems and data processing.

OTHER SKILLS:

- Familier with C++, Fortran, Matlab, SQL.

- Knowledge of and have used phylogenetic analysis tools, MSA tools, Gene prediction softwares like GeneMark, Augustus etc.

- Comfortable in handling large databases.

- Familier with UCSC genome browser, Galaxy, Gene Ontology, NCBI and other online databases and web servers etc.

- Experience of working with high perfomance computing and computing clusters.

- Strong background in Math and Statistics and gaining deep knowledge in Biology.

VOLUNTEER:

- Science Fair judge at Wilson Elementary Science Fair 2017, Denton, Texas, USA.

- Facilitator in Education Outreach Component:Science Teacher 2016 Summer Institute, under Biosyntehesis, Regulation and Engineering of C-lignin project Funded by National Science Foundation(NSF).

- Science Fair judge at Wilson Elementary Science Fair 2016, Denton, Texas, USA.

- Committee memeber of UNT Biology Graduate Student Association 2014.

SCIENTIFIC
ORGANIZATIONS:

- International Society for Computational Biology (ISCB), 2016.

- Society for Molecular Biology and Evolution (SMBE), 2013.

- Received Outstanding Teaching Assistant award for the Biological Sciences department, April 2016.

- Received Second place for Poster at Biology Graduate Student Research Day, UNT Texas, April 2016.

- Received Second place for Poster at Texas Branch ASM Spring 2015 Meeting, New Braunfels, Texas (March 2015).

- Received Second place for Poster at Midsouth Computational System Biology and Bioinformatics Soceity, Stillwater, Oklahoma (March 2014).

- Received Academic Achievements Scolarship(**AAS**) from UNT for good academic standing during 2011-2013.

- USC Scholarship for Continued Student at good academic standing in UNT during 2012-2013.

- Received **Beth-Baird Scolarship** from Department of Biological Sciences, UNT, Fall 2012-2016.

- **Junior Research Fellow** of CSIR (premier industrial Research and Development organization in India), India, **July 2010-2011**.

- **Department of Biotechnology(DBT)**, Govt of India Scholarship during M.tech. (Bioinformatics) from July 2009 - June 2010.

- Qualified **Junior Research Fellowship (JRF) and National Eligibility Test (NET)** under CSIR Junior Research Fellowship category and Lectureship Category in **June, 2009** and again in **December, 2009** in the field of Physics. (The Council of Scientific and Industrial Research (CSIR) conducts the **UGC-CSIR NET** for Science subjects, viz Life Sciences, Physical Sciences, Chemical Sciences, Mathematical Sciences and Earth Atmospheric Ocean and Planetary Sciences jointly with the UGC, The candidates who have high rank in qualified candidates are eligible for both Junior Research fellowship and lectureship category)

- Qualified **Graduate Aptitude Test in Engineering (GATE)** with All India Rank **38 (99.3 percentile) in March 2009**. (GATE is an all-India examination conducted jointly by the Indian Institute of Science and seven Indian Institutes of Technology on behalf of the National Coordinating Board - GATE, Department of Education, Ministry of Human Resource Development (MHRD), Government of India.)

- Qualified **Joint Entrance Screening Test (JEST)** with All India Rank **168 (96.8 percentile) in March 2007**. (JEST is an all-India examination conducted jointly by the Indian Institute of Sciences and 20 other top research centre in India.)