

## Miten Jain

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Phone: (716) 536 0379

miten13@gmail.com  
<http://mitenjain.com/>

### **Objective:**

Working on cutting edge technologies and big data in a dynamic and challenging environment.

### **Education/Qualification:**

PhD, Bioinformatics, 2018, <b>University of California, Santa Cruz</b>	GPA: 3.91/4.0
M.S. Bioinformatics, 2013, <b>University of California, Santa Cruz</b>	GPA: 3.91/4.0
M.S. Biotechnology, 2008, <b>University at Buffalo, The State University of New York</b>	GPA: 3.77/4.0
B.E. Biotechnology Engineering, 2006, <b>University of Rajasthan, India</b>	GPA: 81% Honors

### **Research/Work Experience:**

- **Postdoctoral Scholar, Nanopore Group, UC Santa Cruz, CA [August 2017 – present]**  
Current projects include: 1) developing analysis tools analyzing genomics data; 2) developing wet-lab methods for long read sequencing of DNA and RNA; 3) developing wet-lab methods and software for resolving homopolymers and base modifications; 4) interfacing with collaborators, at UCSC and outside, on nanopore sequencing applications.
- **PhD Candidate, Nanopore Group, UC Santa Cruz, CA [June 2012 – June 2017]**  
Projects include: developing bioinformatics software to perform computational analysis nanopore data from the MinION nanopore sequencer; developing novel experimental strategies for improving nanopore sequencing performance; modeling nanopore data corresponding to biological polymers (DNA, RNA, and protein) using hidden Markov models, and making predictions using machine learning; analyzing bacterial and human epigenomes from nanopore and sequence data.  
Other projects: classification and pattern analysis of human centromeric sequences; developing metagenome assembly pipelines.
- **Research Assistant, Nanopores Inc., Yaphank, NY [Jan. 2009 – July 2011]**  
Worked on R&D of biomedical imaging and therapeutic applications of metal nanoparticles.
- **Teaching Assistant; Student Assistant, University at Buffalo, The State University of New York**
  - **Department of Biotechnical and Clinical Laboratory Sciences [Aug. 2007 – May 2008]**  
Taught undergraduate and graduate labs; graded and corrected papers.
  - **Center for Excellence in Data Analysis and Recognition (CEDAR) [May 2007 – Aug. 2007]**  
Project involved verifying machine read data from United States Postal Service.
  - **Department of Physiology and Biophysics [Dec. 2006 – Aug. 2007]**  
Prepared and maintained *Drosophila* lines used in research for Huntington disease.
- **Industrial Intern at Ranbaxy Research Laboratories Ltd. Gurgaon, India [Feb. 2006 – June 2006]**  
Performed research and development of novel drug candidates.
- **Industrial Intern at Cadila Pharmaceuticals Limited, Ahmedabad, India [Summer 2005]**  
Produced a summary report on the company's various divisions.
- **Research Intern at Birla Institute of Scientific Research, Jaipur, India [Summer 2004]**  
Worked with *proteases* producing bacteria, from soil samples, to be used as medicinal proteins.

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### **Bioinformatics technical skills:**

Proficient: **Python, MATLAB, R, Bash, Cython, Mac OSX, Linux, Windows, HTML**  
Familiar: **Statistical Package for Social Sciences (SPSS), C, C++, DBMS (Oracle).**

### **Life sciences technical skills:**

Proficient: DNA sequencing, Molecular and cell biology techniques, handling analytical instruments, microbiology techniques, Laboratory animals' certification program.

### **Patents:**

#### **2016**

- **Miten Jain**, Hugh E. Olsen, Mark Akeson. 2016. Methods for Determining Base Locations in a Polynucleotide (PCT).

### **Code Repositories:**

- <https://github.com/benedictpaten/marginAlign>
- <https://github.com/mitenjain/nanopore>
- <https://github.com/mitenjain/tRNApore>
- <https://github.com/mitenjain/protpore>

### **Life Sciences Skills:**

Proficient: Molecular and cell biology techniques, handling analytical instruments, microbiology techniques, Laboratory animals' certification program.

### **Publications:**

#### **2018**

- **Miten Jain\***, Hugh E. Olsen\*, Daniel J. Turner, David Stoddart, Kira V. Bulazel, Benedict Paten, David Haussler, Huntington F. Willard, Mark Akeson, and Karen H. Miga. Linear Assembly of a Human Y Centromere using Nanopore Long Reads. *Nature Biotechnology*. 2018.
- **Miten Jain\***, Sergey Koren\*, Josh Quick\*, Arthur C Rand\*, Thomas A Sasani\*, John R Tyson\*, Andrew D Beggs, Alexander T Dilthey, Ian T Fiddes, Sunir Malla, Hannah Marriott, Karen H Miga, Tom Nieto, Justin O'Grady, Hugh E Olsen, Brent S Pedersen, Arang Rhie, Hollian Richardson, Aaron Quinlan, Terrance P Snutch, Louise Tee, Benedict Paten, Adam M. Phillippy, Jared T Simpson, Nicholas James Loman, Matthew Loose. Nanopore sequencing and assembly of a human genome with ultra-long reads (2017). *Nature Biotechnology*. 2018.

#### **2017**

- **Miten Jain\***, Arthur C. Rand\*, Jordan Eizenga\*, Audrey Musselman-Brown, Hugh E. Olsen, Mark Akeson, Benedict Paten. Mapping DNA methylation with high-throughput nanopore sequencing. *Nature Methods*. 2017 Apr;14 (4):411-413.
- Ashley Byrne, Anna E. Beaudin, Hugh E. Olsen, **Miten Jain**, Charles Cole, Theron Palmer, Rebecca M. DuBois, E. Camilla Forsberg, Mark Akeson & Christopher Vollmers. Nanopore Long-Read

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RNAseq Reveals Widespread Transcriptional Variation Among the Surface Receptors of Individual B cells. *Nature Communications*. 2017 Jul 19;8:16027.

- **Miten Jain\***, John R Tyson\*, Nigel J O'Neil\*, Hugh E Olsen, Philip Hieter, Terrance P Snutch. MinION-based long-read sequencing and assembly extends the *Caenorhabditis elegans* reference genome (2017). *Genome Research*, gr. 221184.117.
- **Miten Jain\***, John R. Tyson\*, Matthew Loose\*, Camilla L.C. Ip\*, David A. Eccles, Justin O'Grady, Sunir Malla, Richard M. Leggett, Ola Wallerman, Hans J. Jansen, Vadim Zalunin, Ewan Birney\*, Bonnie L. Brown\*, Terrance P. Snutch\*, Hugh E. Olsen\*, MinION Analysis and Reference Consortium. MinION Analysis and Reference Consortium: Phase 2 data release and analysis of R9.0 chemistry (2017). *F1000Research*.
- Andrew M Smith, **Miten Jain**, Logan Mulroney, Daniel R Garalde, Mark Akeson. Reading canonical and modified nucleotides in 16S ribosomal RNA using nanopore direct RNA sequencing (2017). bioRxiv (<http://www.biorxiv.org/content/early/2017/04/29/132274>).

### 2016

- **Miten Jain**, Hugh E. Olsen, Benedict Paten, Mark Akeson (2016). The Oxford Nanopore MinION: delivery of nanopore sequencing to the genomics community. *Genome Biology* 2016, **17**:239.

### 2015

- **Miten Jain**, Ian T. Fiddes, Karen H. Miga, Hugh E. Olsen, Benedict Paten and Mark Akeson. (2015). Improved data analysis for the MinION nanopore sequencer. *Nature Methods*, 2015, 12:351–356.
- **Miten Jain\***, Camilla L.C. Ip\*, Matthew Loose\*, John R. Tyson\*, Mariateresa de Cesare\*, Bonnie L. Brown\*, Richard M. Leggett\* et al. MinION Analysis and Reference Consortium: Phase 1 data release and analysis. *F1000Research* 2015, **4**:1075.

### 2014

- Karen H. Miga, Yulia Newton, **Miten Jain**, Nicolas F. Altemose, Huntington F. Willard and W. James Kent. (2014). Complete sequence representation across human X and Y centromeric regions. *Genome Research*, 24:697-707.

### 2012

- Michelle M. Maalouf, **Miten Jain**, Paolo Actis, Nader Pourmand. (2012). Single-cell manipulation using Nanopipettes. *Nanotech*, 2:384–7.

### 2011

- Jamie Heimburg-Molinaro, Michelle Lum, Geraldine Vijay, **Miten Jain**, Adel Almogren, Kate Rittenhouse-Olson. (2011). Cancer vaccines and carbohydrate epitopes. *Vaccine*, 48:8802-26.
- Vishwas N. Joshi, **Miten Jain**, Frederic R. Furuya, Richard D. Powell, James F. Hainfeld, Marc C. Llaguno, and Donald W. Hilgemann. (2011). HaloTag® Protein-Mediated Live Cell Imaging with Bigger FluoroNanogold™. *Microscopy and Microanalysis*, 17:150-1.

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- Vishwas N. Joshi, **Miten Jain**, Frederic R. Furuya, Richard D. Powell, J. F. Hainfeld, Johanna Nelson, Chris Jacobsen, James Quinn, Aaron M. Neiman. (2011). Combined Texas Red and 1.8 nm FluoroNanogold™ for Multimodal Imaging. *Microscopy and Microanalysis*, 17:152-3.

### *\* Equal Contributions*

### Theses:

#### **2017**

- **Miten Jain**. High-Coverage Long Read DNA Sequencing with the Oxford Nanopore MinION. Doctorate of Philosophy Dissertation, University of California, Santa Cruz, CA.

#### **2008**

- **Miten Jain**. Cloning of a sialyltransferase gene to analyze surface sialic acid effects on metastasis. M.S. Thesis, State University of New York at Buffalo, 2008.

### Achievements:

- **Internal Vice-President**, Graduate Student Association (GSA), UC Santa Cruz, 2013-2014.
- Awarded **Keck/QB3 fellowship** for graduate studies in bioinformatics at UC Santa Cruz, 2011.
- **Department Representative**, Biomolecular Engineering and Bioinformatics, GSA, UC Santa Cruz, 2011 - Present.
- Awarded **Mark Diamond Research Fund Grant** for Master's Thesis Research at University at Buffalo, NY, 2008.
- **Founder and President, Biotechnology Graduate Student Association** at University at Buffalo, NY, 2007-2008.
- **Vice-President, Graduate Indian Student Association** at University at Buffalo, NY, 2007-2008.
- **President, Tantraa**, an intercultural club at University at Buffalo, NY, 2007-2008.
- Consistently ranked amongst top 3 in various **Singing and Debate Contests, General Knowledge, Cultural and Corporate Business Quizzes**, at School and College levels.