

Amrit Singh

COMPUTATIONAL BIOLOGIST · FULL STACK DATA SCIENTIST

1081 Burrard Street, Vancouver, V6Z 1Y6, Canada

☎ (604) 806-8586 | ✉ amrit.singh@hlii.ubc.ca | 🏠 amritsingh.ca | 📄 github.com/singha53 | 🔗 linkedin.com/in/amrit-singh | 🐦 @asingh_22g

Summary

I am a researcher that uses and develops statistical tools to extract signals from big biological (omics) data. My work intersects biology, math, statistics and programming. I have developed new methods to integrate multi-source biological data as part of the mixOmics data integration project. I use web frameworks to develop interactive graphical and voice (Alexa) user interfaces for data analytics.

Education

University of British Columbia

Vancouver, Canada

PHD IN EXPERIMENTAL MEDICINE

Jan. 2011 - June. 2016

- Advisor: Dr. Scott Tebbutt | Dissertation title: Biomarker panels of the late phase asthmatic response
- Doctoral Award - Frederick Banting and Charles Best Canada Graduate Scholarships (CGS-D) | AllerGen Research Acquisition Award | CGS-Michael Smith Foreign Study Supplement | Four Year Fellowships (FYF) For PhD Students
- 2nd place in PhD category - 2016 AllerGen Research Conference | 2nd place in PhD category - 2015 CSACI Annual Scientific Meeting | 1st place in PhD category - 2014 CSACI Annual Scientific Meeting | 3rd place - 2013 Genomics Forum and Poster Competition
- ICRH Young Investigators Forum Travel Award | AllerGen NCE travel awards | BC Proteomics Network travel awards

McMaster University

Hamilton, Canada

HONOURS B.SC. IN BIOLOGY AND MATHEMATICS

Sept. 2007 - Aug. 2010

- Dean's Honour List, McMaster University (2008-2010) | Dr. Harry Lyman Hooker Scholarship
- McMaster Entrance Scholarship | Queen Elizabeth Aiming for the Top Scholarship

Work Experience

PROOF Centre of Excellence

Vancouver, Canada

POSTDOCTORAL RESEARCH FELLOW

Jun. 2016 - Present

- Advisors: Drs. Bruce McManus and Raymond Ng
- Biomarkers, data integration, method development, disease classification in the context of heart failure
- Michael Smith Foundation for Health Research (MSFHR) Trainee award | Mitacs Accelerate Award
- International Society of Heart and Lung Transplantation travel award

Skills

Programming R, JavaScript, Python, C++

Web MERN (MongoDB/MySQL, Express, React, Node), HTML5, CSS, Redux, R Shiny, Flask

AWS IAM, EC2, ELB, Elastic Beanstalk, CloudFormation, Monitoring, Messaging, Alexa Skills Kit, Serverless

Biomedical Data Science Statistical inference, machine learning, genomics tools

Reproducible Research Git (GitHub, Azure, AWS CodeCommit), GNU Make, Rmarkdown

Languages English, Punjabi

Publications

22 peer-reviewed papers (9 first author)

Singh et al. *J Cyst Fibros* 2019 | Singh et al. *Can J Cardiol* 2019 | Singh et al. *Bioinformatics* 2019 | Fajgenbaum et al. *J Clin Invest* 2019 | Dong et al. *Chest* 2019 | Lee et al. *Nat Commun* 2019 | Manji et al. *World J Otorhinolaryngol Head Neck Surg* 2019 | Singh et al. *Am J Respir Crit Care Med* 2018 | Pierson et al. *Am J Hematol* 2018 | Yang et al. *Am J Respir Crit Care Med* 2017 | Kim et al. *J Immunol* 2017 | Rohart et al. *PLoS Comput Biol* 2017 | Rider et al. *J Allergy Clin Immunol* 2016 | Pesenacker et al. *Diabetes* 2016 | Singh et al. *Allergy Asthma Clin Immunol* 2014 | Yamamoto et al. *Environ Health Perspect* 2013 | Singh et al. *PLoS One* 2013 | Tebbutt et al. *Genomic Insights* 2012 | Yamamoto et al. *BMC genomics* 2012 (joint-first) | Singh et al. *Proteomics Clin Appl* 2012 | Kam et al. *J Asthma* 2012 (joint-first)

Book chapter

Singh A, Shannon CP, Le Cao K, Tebbutt SJ. Can Big Data Analytics Recapitulate Biology? *A Survey of Multi-omics Data Integration Approaches*. Carini, Menon and Fidock. Handbook of Biomarkers and Personalized Medicine. CRC Press 2019.

24 Meeting abstracts

Dong et al. *Pediatr Pulmonol* 2018 | Singh et al. *Atherosclerosis* 2018 | Rabinovitch et al., *Ann Am Thorac Soc* 2018 | Rider et al. *Ann Am Thorac Soc* 2018 | Singh et al. *Can J Cardiol* 2017 | Singh et al. *Am J Respir Crit Care Med* 2017 | Alsayegh et al. *Allergy Asthma Clin Immunol* 2017 | Am J Respir Crit Care Med 2017 | Singh et al. *J Heart Lung Transplant* 2017 | Tebbutt et al., *Eur Respir J* 2016 | Arrieta et al. *Allergy Asthma Clin Immunol* 2016 | Côté et al. *Allergy Asthma Clin Immunol* 2016 | Singh et al. *Ann Am Thorac Soc* 2016 | Rider et al. *Am J Respir Crit Care Med* 2016 | Gliddon et al. *Allergy* 2015 | Yang et al. *Allergy Asthma Clin Immunol* 2014 | Kim et al. *Allergy Asthma Clin Immunol* 2014 | Singh et al. *Allergy Asthma Clin Immunol* 2014 | Rabinovitch et al. *Eur Respir J* 2014 | Tebbutt et al. *Allergy: European Journal of Allergy and Clinical*

Other media

Singh A, Tebbutt SJ. *New blood test predicts 'late-phase' asthmatic response*. AllerGen Research SKETCHES. 2018.

Grants

2018-2020 Centre for Heart Lung Innovation , Postdoctoral Research Grant (Applicant)	\$20,000
2017-2019 BC Lung Association , Grant-in-aid (Co-applicant)	\$50,000

Presentations

Oral Presentations

1. Informed patient consent on the blockchain, eHealth Conference, April 2019.
2. Allergy and Immunology Rounds, McMaster University, March 09, 2018. Attendance: 30 (invited)
3. Centre for Heart Lung Innovation, UBC and St. Paul's Hospital, Gourlay Conference Rm 103, June 22nd, 2017. Attendance: 50. (invited)
4. Statistics seminar, University of British Columbia, Canada, October 25, 2016. Attendance: 50. (invited)
5. Research In Progress Seminar, Institute of Heart & Lung, Vancouver, Canada – January 18th, 2016. Attendance: 50.
6. Thomas L. Petty Aspen Lung Conference, Aspen, Colorado – June 10-13th, 2015. Attendance: 100. (invited)
7. Child Family Research Institute, Vancouver, BC – April 1st, 2015. Attendance: 20. (invited)
8. Advances in Genome Sciences, Illumina User Group, UBC – March 18th, 2015. joint talk with Casey Shannon. Attendance: 50. (invited)
9. Structure Function airways meeting, Institute of Heart Lung, Vancouver, BC – March 17th, 2015. Attendance: 25

Poster Presentations

- 2019 : Ottawa Heart Summit, FEST
- 2018: International Society for Atherosclerosis, FEST
- 2017: Canadian Cardiovascular Congress, American Thoracic Society, FEST, International Society of Heart and Lung Transplantation, Personalized Medicine Summit
- 2015: 14th Annual Human Proteome Organization (HUPO) World Congress, and AllerGen Poster Competition and Fifth Seattle Symposium, Norman Bethune Symposium
- 2014: Young Investigator's Forum
- 2013: AllerGen CSACI Annual Meeting, Genome BC Genomics Forum, Young Investigator's Forum
- 2012: Earl Dave Symposium, 7th Annual AllerGen Research Conference, BCPN Symposium
- 2011: Cascadia Proteomics Symposium, Experimental Medicine Student Research Day, 6th Annual AllerGen Research Conference

Teaching

Postdoctoral Teaching Fellow

UNIVERSITY OF BRITISH COLUMBIA

Vancouver, BC

Jan 2017 – Apr 2017

- Co-instructor with Dr. Paul Pavlidis of Statistics in High Dimensional Biology (STAT540)

Data analysis instructor

CENTRE FOR HEART LUNG INNOVATION

Vancouver, BC

Oct 2014 – Dec 2015

- Co-creator of a statistical computing course covering a range of topics from data visualization, data manipulation, statistical modeling using the R programming language

Invited R studio instructor

CENTRE OF DISEASE CONTROL

Vancouver, BC

May – Jun 2015

- R programming language introduction to the employees. Four-90 minute workshops with an attendance of 25 individuals

Extracurricular Activity

2015-2017 **President**, AllerGen Student and New Professionals Network (ASNPN) Leadership Committee

2013-2015 **Pacific Director**, AllerGen Student and New Professionals Network (ASNPN) Leadership Committee

2016 **Meeting planner**, AllerGen 2016 Innovation from Cell to Society Research Conference

2015 **Adjudicator**, Multidisciplinary Undergraduate Research Conference, UBC

Professional Development

2019 **Certificate**, Certified Developer - Associate

AWS

2019 **Certificates**, Algorithmic Toolbox and Recommendation Systems with TensorFlow on GCP

Coursera

2019 **Certificate**, CIHR Institute of Gender and Health Core Competency Module for Sex and Gender in Biomedical Research

CIHR Institute of Gender and Health

2019 **Certificates**, Introduction to Computer Science and Programming Using Python and 6.00.2x: Introduction to Computational Thinking and Data Science

edX

2018 **Certificate**, Entrepreneurship 101

MaRS

2018 **Certificate**, UofT School of Continuing Studies Coding Boot Camp - Fullstack Web development (24-week)

UofT

2017 **Certificate**, Neural Networks and Deep Learning

deeplearning.ai