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Template: CIHR Project Biosketch

Professor Raymond Ng

Correspondence language: English
Sex: Male
Date of Birth: 8/20
Canadian Residency Status: Canadian Citizen
Country of Citizenship: Canada

Contact Information

The primary information is denoted by (*)

Address

Courier (*)

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Primary Affiliation

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Professor Raymond **Ng**

Degrees

1988/9 - 1992/5	Doctorate, Computer Science, University of Maryland at College Park Degree Status: Completed
1986/9 - 1988/5	Master's Thesis, Computer Science - Masters, University of Waterloo Degree Status: Completed
1984/9 - 1986/5	Bachelor's, Computer Science (Honours), University of British Columbia Degree Status: Completed

Recognitions

2004/5	Best Paper Award ACM SIGMOD International Conference on Data Management
2001/8	Best Paper Award ACM SIGKDD International Conference on Knowledge Discovery and Data Mining
1986/9 - 1988/5	Postgraduate Scholarship University of British Columbia
1986/5	Governor General's Gold Medal Governor General of Canada

Employment

2016/7	Director Data Science Institute, Science, UBC
2002/7	Full Professor Computer Science, Science, University of British Columbia
2008/7 - 2016/6	Chief Informatics Officer PROOF Centre of Excellence
1997/7 - 2002/6	Associate Professor Computer Science, Science, University of British Columbia
1992/7 - 1997/6	Assistant Professor Computer Science, Science, University of British Columbia

Affiliations

The primary affiliation is denoted by (*)

(*) 2002/7   Full Professor, Computer science, University of British Columbia

Research Funding History

Awarded [n=4]

2018/4 - 2023/3 Principal Applicant	HEARTBIT: a novel multi-marker blood test for management of acute cardiac allograft rejection

Funding Sources:
Canadian Institutes of Health Research (CIHR)
Project Scheme
Total Funding - 2,180,250
Funding Competitive?: Yes

Co-investigator : Karen Lam; Rob Balshaw;

Principal Applicant : Bruce McManus; Scott Tebbutt

2018/4 - 2021/3 Co-investigator	MERIDIAN: Marine Environmental Research Infrastructure for Data Integration and Application Network

Funding Sources:
Canada Foundation for Innovation (CFI)
Cyber Infrastructure
Total Funding - 5,000,000
Funding Competitive?: Yes

Principal Applicant : Stan Matwin

2018/4 - 2021/3 Co-investigator	Pan-Canadian Early Detection of Lung Cancer

Funding Sources:
Terry Fox Research Institute (TFRI)
Applied research
Total Funding - 2,000,000
Funding Competitive?: Yes

Principal Applicant : Stephen Lam

2014/4 - 2019/3 Principal Applicant	Managing and Modeling Time in Genomics Data

Funding Sources:
Natural Sciences and Engineering Research Council of Canada (NSERC)
Discovery grant
Total Funding - 310,000
Funding Competitive?: Yes

Completed [n=5]

2013/4 - 2018/3 Co-applicant	Biomarkers for predicting and diagnosing COPD exacerbations

Funding Sources:
Genome Canada
Applied Health
Total Funding - 7,200,000
Funding Competitive?: Yes

Principal Applicant : Don Sin

2015/1 - 2016/6 Principal Applicant	An Effective and Scalable email summarization system

Funding Sources:
Yahoo Research
Applied research

Total Funding - 40,000
Funding Competitive?: Yes

Co-applicant : Giuseppe Carenini

2012/1 - 2014/10 Co-applicant	Biomarkers in Transplantation clinical implementation

Funding Sources:
Genome British Columbia
Translational project
Total Funding - 1,600,000
Funding Competitive?: Yes

Co-applicant : Paul Keown; Robert McMaster;

Principal Applicant : Bruce McManus

2009/4 - 2014/3 Principal Investigator	A data mining framework for genomics biomarkers and signature identification

Funding Sources:
Natural Sciences and Engineering Research Council of Canada (NSERC)
Discovery grant
Total Funding - 350,000
Funding Competitive?: Yes

2009/4 - 2014/3 Co-applicant	Business Intelligence Network

Funding Sources:
Natural Sciences and Engineering Research Council of Canada (NSERC)
Strategic network
Total Funding - 5,000,000
Funding Competitive?: Yes

Co-applicant : Danilson Barbosa; Eric Yu; Evangelos Milios; Frank Tompa; John Mylopolous; Laks Lakshmanan; Rachel Pottinger; Tamer Ozsu;

Principal Applicant : Renee Miller

Publications

Journal Articles

1. (*) Shu Yang; Junwen Wang; Raymond T. Ng. (2018). Inferring RNA sequence preferences for poorly studied RNA-binding proteins based on coevolution. BMC Bioinformatics Journal. March: 12859-018-2091-8.
    Published
    Refereed?: Yes

2. Alotaibi, N., Chen, V., Ng, R., Sin, D. et al. (2018). Phenotyping COPD Exacerbations Using Imaging and Blood-based Biomarkers. International Journal of Chronic Obstructive Pulmonary Disease. 2018(13): 217-229.
    Published
    Refereed?: Yes

3. Khakhan, A., Sin, D., Ng, R. et al. (2017). The projected epidemic of COPD hospitalizations over thenext 15 years: a population based perspective. American Journal of Respiratory and Critical Care Medicine. 195(3): Feb.
    Published
    Refereed?: Yes, Open Access?: No

4. Dewi, S., Hollander, Z., Ng, R. et al. (2017). Association of Serum MiR-142-3p and MiR-101-3p Levelswith Acute Cellular Rejection After Heart Transplantation. PLOS ONE. January: oi.org/10.1371/.
Published
Refereed?: Yes, Open Access?: Yes

5. (*) Chen, R., Chen, V., Ng, R. et al. (2017). C-reactive protein and N-terminal prohormone brain natriureticpeptide as biomarkers in acute exacerbations of COPD leading to hospitalizations. PLOS ONE. March: doi.org/10.1371.
Published
Refereed?: Yes, Open Access?: Yes

6. Obeidat, M., Ng, R., Sin, D. et al. (2017). Network-BasedAnalysis Reveals Novel Gene Signatures in Peripheral Blood of Patientswith Chronic Obstructive Pulmonary Disease. Respiratory Research. 18: doi 10.1186/s12931-0.
Published
Refereed?: Yes

7. Roberts, J., Ng, R, Quon, B. et al. (2017). Multiple Reaction Monitoring Mass Spectrometry to Identify Novel Plasma Protein Biomarkers of Treatment Response in Cystic Fibrosis Pulmonary Exacerbations. Journal of Cystic Fibrosis. 10: 10.1016/j.jcf.2017.
Published
Refereed?: Yes

8. (*) Cohen-Freue, G., Takhar, M., Ng, R. et al. (2017). An Algorithm to Link Protein Groups Created fromMS/ MS Data. PLOS ONE. 12(5): 1371-1380.
Published
Refereed?: Yes, Open Access?: Yes

9. Toma, M., Mak, G., Ng, R. et al. (2017). Differentiating heart failure phenotypes using sex-specifictranscriptomic and proteomic biomarker panels. European Heart Failures Journal. March: DOI: 10.1002/ehf2.12.
Published
Refereed?: Yes, Open Access?: No

10. (*) Shannon, C., Balshaw, R., Ng, R., et al. (2017). Enumerateblood an R package to estimate the cellularcomposition of whole blood from Affymetrix Gene ST gene expression profiles,. BMC Genomics. January: DOI: 10.1186/s12864.
Published
Refereed?: Yes, Open Access?: No

11. Obeidat, M., Ng, R., Sin, D. et al. (2017). Integrative Genomics of Emphysema Associated Genes RevealsPotential Disease Biomarkers. American Journal of Respiratory cell and molecular biology. 57(4): 411-418.
Published
Refereed?: Yes, Open Access?: No

12. Dewi, I., Ng, R, Smith, G. et al. (2017). Immunologic serum protein profiles for non-invasive detection of acute cellular rejection after heart transplantation. Journal of the American College of Cardiology. 70(23): 2946-2947.
Published
Refereed?: Yes

13. Obeidat, M., Ng, R., Sin, D. et al. (2016). The effect of different case definitions of current smoking on the discovery of smoking-related blood gene expression signatures in COPD. Nicotine and Tobacco Research. September: doi: 10.1093.
Published
Refereed?: Yes

14. Sin, D., Ng, R. et al. (2016). Biomarker Development in COPD: Moving From P-Values To Products To Impact Patient Care. CHEST. 151(2): 455-467.
    Published
    Refereed?: Yes, Open Access?: No

15. Zafari, Z., Ng, R., Sadatsafavi, M. et al. (2016). Individualized prediction of lung-function decline in COPD. Canadian Medical Association Journal. August: doi: 10.1503.
    Published
    Refereed?: Yes

16. (*) Shannon, C., Ng, R. et al. (2016). SABRE: A method for assessing the stability of gene modules in complex tissues and subject populations. BMC Bioinformatics. November: DOI: 10.1186.
    In Press
    Refereed?: Yes, Open Access?: No

17. Tkacova, R., Ng, R. et al. (2016). Airway Hyperresponsiveness in COPD: A Marker of Asthma-COPD Overlap Syndrome?. Journal of Allergy and Clinical Immunology. 193(May): doi: 10.1016.
    Published
    Refereed?: Yes

18. Khakban, A., Ng, R., Sin, R. et al. (2016). The Projected Epidemic of COPD Hospitalizations Over the Next 15 Years: A Population Based Perspective. American Journal of Respiratory And Critical Care Medicine. 1164: doi: 10.1164.
    Published
    Refereed?: Yes

19. Leung, J., Ng, R. et al. (2016). COPD exacerbation biomarkers validated using multiple reaction monitoring mass spectrometry. PLOS ONE. August: doi: 10.1371.
    Published
    Refereed?: Yes

20. (*) Dai, D., Ng, R., Quon, B. et al. (2016). Discovery of plasma protein biomarkers to predict imminent cystic fibrosis pulmonary exacerbations using multiple reaction monitoring mass spectrometry. Thorax. March: 216-22.
    Published
    Refereed?: Yes, Open Access?: No

21. (*) Shima Gerani, Giuseppe Carenini, Raymond Ng. (2016). Modeling Content and Structure for Abstractive Review Summarization. Computer Speech and Language. 10: 1016.
    In Press
    Refereed?: Yes

22. Khakban, A., Ng, R. et al. (2015). 10-Year Trends in Direct Costs of COPD: a Population Based Study. CHEST. 148(3): 640-6. doi: 10.1378.
    Published
    Refereed?: Yes

23. Sin, D., Ng, R. et al. (2015). Biomarker Development for Chronic Obstructive Pulmonary Disease, from Discovery to Clinical Implementation. American Journal of Respiratory and Critical Care Medicine. 192(10): 1162-1170.
    Published
    Refereed?: Yes

24. (*) Min, J., Shim, K., Ng, R. et al. (2015). Aggregate query processing in the presence of duplicates in wireless sensor networks. Information Sciences. 297: 1-20.
    Published
    Refereed?: Yes, Open Access?: No

25. Obeidat, M., Ng, R., et al. (2015). The Effect of Statins on Blood Gene Expression in COPD. PLOS ONE.
     October: DOI:10.1371.
     Published
     Refereed?: Yes

26. Meredith, A., Ng, R. et al. (2015). Circulating Biomarker Responses to Medical Management Versus
     Mechanical Circulatory Support in Severe Inotrope-dependent Acute Heart Failure. European Journal of
     Heart Failure. November: doi: 10.1002.
     Published
     Refereed?: Yes

27. (*) Joty, S., Carenini, G., Ng, R. (2015). CODRA: A Novel Discriminative Framework for Rhetorical
     Analysis. Journal of Computational Linguistics. 41(3): 385-435.
     Published
     Refereed?: Yes

28. (*) Hollander Z, Lazarova M, McManus, B, Ng, R. et al. (2014). Proteomic Biomarkers of Recovered Heart
     Function. European Journal Heart Failure. DOI: 10.1002/ejhf.65: 551-9.
     Published
     Refereed?: Yes, Open Access?: No

29. (*) Shin, H., Gunther, O., Ng,R. et al. (2014). Longitudinal Analysis of Whole Blood Transcriptomes
     to Explore Molecular Signatures Associated With Acute Renal Allograft Rejection. Bioinformatics and
     Biological Insights. DOI: 10.4137/BBI.S13: 17-33.
     Published
     Refereed?: Yes, Open Access?: Yes

30. (*) Shannon, C., Tebbutt, S., Ng, R. et al. (2014). Two-Stage, In Silico Deconvolution of the Lymphocyte
     Compartment of the Peripheral Whole Blood Transcriptome in the Context of Acute Kidney Allograft
     Rejection. PLOS ONE. 9(4) :e95224: 1031-1043.
     Published
     Refereed?: Yes, Open Access?: Yes

31. (*) Gunther, O., Le-Cao, K., Ng, R. et al. (2014). Novel Multivariate Methods for Integration of Genomics
     and Proteomics Data:Applications in a Kidney Transplant Rejection Study. OMICS A Journal of Integrative
     Biology. 18(11): 682-95.
     Published
     Refereed?: Yes, Open Access?: Yes

32. (*) Shin, H., Shannon, C., Tebbutt, S., Ng et al. (2014). Variation in RNA-Seq transcriptome profiles of
     peripheral whole blood from healthy individuals with and without globin depletion. PLOS ONE. DOI:
     10.1371/journal: 009104.
     Published
     Refereed?: Yes, Open Access?: Yes

33. (*) Freue-Cohen G, Meredith A, Ng R, et al. (2013). Computational biomarker pipeline from discovery to
     clinical implementation: plasma proteomic biomarkers for cardiac transplantation. PLoS Computational
     Biology. 9(4): doi: 10.1371.
     Published
     Refereed?: Yes, Open Access?: Yes

34. (*) Joty S, Carenini G and Ng R. (2013). Topic Segmentation and Labeling in Asynchronous Conversations.
     Journal of Artificial Intelligence Research. 47: 521-573.
     Published
     Refereed?: Yes

35. (*) Scherer, A., Gunther, O., Ng, R. et al. (2013). Alternation of human blood cell transcriptome in uremia. BMC Medical Genomics. DOI: 10.1186/1755-87: 6:23.
    Published
    Refereed?: Yes, Open Access?: Yes

36. (*) Hollander Z, Chen V, Ng, R, et al. (2013). Predicting Acute Cardiac Rejection from Donor Heart and Pre-Transplant Recipient Blood Gene Expression. Journal of Heart and Lung Transplantation. 32(2): 259-65.
    Published
    Refereed?: Yes

37. (*) Lin D, Hollander Z, McManus and Ng R, et al. (2013). Plasma Protein Bio-signature for Detection of Cardiac Allograft Vasculopathy. Journal of Heart and Lung Transplantation. 32(7): 723-733.
    Published
    Refereed?: Yes

38. (*) Shannon C, Ng R, et al. (2012). White Blood Cell Differentials Enrich Whole Blood Expression Data in the Context of Acute Cardiac Allograft Rejection. Bioinformatics and Biology Insights. 6: 49-61.
    Published
    Refereed?: Yes

39. (*) Gunther O, Chen V, Ng R, et al. (2012). A computational pipeline for the development of multi-marker bio-signature panels and ensemble classifiers. BMC Bioinformatics. 13(13): 326-343.
    Published
    Refereed?: Yes

40. Gunther OP, Lin D, Balshaw RF, Ng RT, Hollander Z, Wilson-McManus J, McMaster WR, McManus B, Keown PA. (2011). Effects of sample timing and treatment on gene expression in early acute renal allograft rejection. Transplantation. 91(3): 323-329.
    Published
    Refereed?: Yes

41. Gibb E, Enfield K, Ng RT, et al. (2011). Long non-coding RNAs are expressed in oral mucosa and altered in oral premalignant lesions. Oral Oncology. 47(11): 55-61.
    Published
    Refereed?: Yes

42. Lin D, Hollander Z, Meredith A, Stadnick E, Sasaki M, Cohen Freue G, Qasimi P, Mui A, Ng RT, Balshaw RVA, Wilson-McManus JE, Wishart D, Hau D, Keown PA, McMaster R, McManus BM. (2011). Molecular signatures of end-stage heart failure. Journal of Cardiac Failure. 17(10): 867-874.
    Published
    Refereed?: Yes

Books

1. Ng R, Arocena P, Barbosa D, Carenini G, et al. (2013). Perspectives on Business Intelligence. Ozsu M.
   Published, Morgan Claypool, United States

Conference Publications

1. (*) Nejet, B., Carenini, G., Ng, R.Exploring Joint Neural Model for Sentence Level DiscourseParsing and Sentiment Analysis. Annual SIGdial Meeting on Discourse and Dialogue,
   Paper
   Refereed?: Yes, Invited?: No

2.	(*) Johnson, J., Masrani, V., Carenini, G., Ng, R.Generating and Evaluating Summaries forPartial Email Threads: Conversational Bayesian Surprise and Silver Standards. Annual SIGdial Meeting on Discourse and Dialogue,
Paper
Refereed?: Yes, Invited?: No

3.	(*) Jiang, K., Carenini, G., Ng, R.Training Data Enrichment for Infrequent DiscourseRelations. International Conference on Computational Linguistics,
Paper
Refereed?: Yes, Invited?: No

4.	(*) Allen, K., Carenini, G., Ng, R.Detecting Disagreement in Conversations usingPseudo-Monologic Rhetorical Structure. Conference on Empirical Methods in NLP and the Conference on Natural Language Learning,
Paper
Refereed?: Yes, Invited?: No

5.	(*) Gerani, S., Mehdad, Y., Carenini, G., Ng, R.Abstractive Summarization of Product ReviewsUsing Discourse Structure. Conference on Empirical Methods in NLP and the Conference on Natural Language Learning,
Paper
Refereed?: Yes, Invited?: No

6.	(*) Mehdad, Y., Carenini, G. and Ng, R.Abstractive Summarization of Spoken and WrittenConversations Based on Phrasal Queries. Annual meeting of the Association for Computational Linguistics,
Paper
Refereed?: Yes, Invited?: No

7.	(*) Dang, X., Assent, I., Ng, R., Zimek, A. and Schubert, E.Discriminative Features for Identifyingand Interpreting Outliers. 30th IEEE International Conference on Data Engineering, Chicago,
Paper
Refereed?: Yes, Invited?: No

8.	(*) Tatsuro, O., Mehdad, Y., Carenini G., Ng, R.A Template-based Abstractive MeetingSummarization: Leveraging Summary and Source Text Relationships. International Conference on Natural Language Generation,
Paper
Refereed?: Yes, Invited?: No

9.	(*) Micenkova, B., Ng, R., Assent, I.Explaining outliers by subspace separability. IEEE International Conference on Data Mining, Dallas, United States
Conference Date: 2013/12
Paper
Refereed?: Yes, Invited?: No

10.	(*) Dang X, Micenkova B, Assent I, Ng R.Local Outlier Detection with Interpretation. The European Conference on Machine Learning and Principles and Practice of Knowledge Discovery in Databases, Prague, Czech Republic
Conference Date: 2013/9
Paper
Refereed?: Yes, Invited?: No

11.	(*) Tavafi M, Mehdad Y, Carenini G and Ng R.Dialogue Act Recognition in Synchronous and Asynchronous Conversations. 14th Annual Meeting of the Special Interest Group on Discourse and Dialogue, Metz, France
Conference Date: 2013/8
Paper
Refereed?: Yes, Invited?: No

12. (*) Joty S, Carenini G, Ng R, Mehdad Y.Combining Intra- and Multi-sentential Rhetorical Parsing for Document-level Discourse Analysis. Annual meeting of the Association for Computational Linguistics, Sophia, Bulgaria
    Conference Date: 2013/8
    Paper
    Refereed?: Yes, Invited?: No

13. (*) Mehdad Y, Carenini G, Ng R and Tompa F.Abstractive Meeting Summarization with Entailment and Fusion. 14th European Conference on Natural Language Generation, Sophia, Bulgaria
    Conference Date: 2013/8
    Paper
    Refereed?: Yes, Invited?: No

14. (*) Mehdad Y, Carenini G, Ng R and Joty S.Towards Topic Labeling with Phrase Entailment and Aggregation. 14th Annual Conference of the North American Chapter of the Association for Computational Linguistics, Atlanta, United States
    Conference Date: 2013/6
    Paper
    Refereed?: Yes, Invited?: No

15. (*) Dang X, Micenkova B, Assent I and Ng R.Outlier Detection with Space Transformation and Spectral Analysis. SIAM International Conference on Data Mining, Austin, United States
    Conference Date: 2013/5
    Paper
    Refereed?: Yes, Invited?: No

16. (*) Joty S, Carenini G and Ng R.A Novel Discriminative Framework for Sentence-Level Discourse Analysis. Conference on Empirical Methods in NLP and the Conference on Natural Language Learning, Jeju,
    Conference Date: 2012/10
    Paper
    Refereed?: Yes, Invited?: No

17. Murray G, Carenini G and Ng R.Detecting abstractive sentence communities: a new summarization task. Fifth International Conference on Natural Language Processing, Chiang Mai, Thailand
    Conference Date: 2011/11
    Paper
    Refereed?: Yes, Invited?: No

Presentations

1. (2017). Data Science and COPD Exacerbations. Nanyang Technical University, Singapore
   Main Audience: Researcher
   Invited?: Yes, Keynote?: Yes

2. (2016). Biomarker Discovery in Personalized Medicine. Inaugural Fraser Lecture Series, University of Washington, United States
   Main Audience: General Public
   Invited?: Yes, Keynote?: Yes

3. (2015). Biomarker Discovery in Personalized Medicine. 7th European Conference on Machine Learning and Principles and Practice of Knowledge Discovery in Databases, France
   Main Audience: Researcher
   Invited?: Yes, Keynote?: Yes

4. Ng R. (2011). Combinatorial Biomarker Development for End-stage Organ Failures. Second World DNA and Genome Day, China
   Main Audience: Researcher
   Invited?: Yes, Keynote?: Yes

5. Ng R. (2010). A Comprehensive Combinatorial Biomarker Discovery Strategy. BioIT World Expo, United States
    Main Audience: Researcher
    Invited?: Yes, Keynote?: Yes

Student/Postdoctoral Supervision

Doctorate [n=4]

2009/9 - 2013/4	Hollander Zsuzsanna, UBC
Co-Supervisor	Thesis/Project Title: Novel approaches to biomarker discovery for heart health
	Present Position: Biomarker Program Manager, PROOF Centre

2009/5 - 2013/9
Co-Supervisor
Joty, Shafiq, UBC
Thesis/Project Title: Topic modeling of text conversations
Present Position: assistant professor

2005/9 - 2009/2
Principal Supervisor
Shah, Sohrab, UBC
Thesis/Project Title: Array CGH breakpoint detection
Present Position: UBC faculty member

2005/7 - 2011/5
Principal Supervisor
Bu, Shaofeng, UBC
Thesis/Project Title: Privacy preserving data-mining
Present Position: Research staff Microsoft research

Post-doctorate [n=6]

2017/9 - 2019/6
Co-Supervisor
Hyeju Jang, UBC
Thesis/Project Title: Topic modeling with Ontology
Present Position: Postdoctoral fellow

2017/1 - 2019/6
Principal Supervisor
Feng Xu, UBC
Thesis/Project Title: COPD hot spot analysis
Present Position: Postdoctoral fellow

2013/1 - 2014/12
Co-Supervisor
Gerani, Shima, UBC
Thesis/Project Title: Sentiment analysis
Present Position: data scientist

2012/7 - 2015/6
Co-Supervisor
Yashar Mehdad, UBC
Thesis/Project Title: Abstractive summarization
Present Position: Research Manager

2010/7 - 2013/6
Principal Supervisor
Heesun Shin, UBC
Thesis/Project Title: Biomarker development for organ transplantation
Present Position: Product manager

2007/7 - 2012/12
Principal Supervisor
Cohen-Freue, Gabriela, UBC
Thesis/Project Title: Analysis of Proteomic Expression
Present Position: CRC Chair, Department of Statistics