

# RAUNAK SHRESTHA, PhD

Curriculum Vitae [Last Updated: July 11, 2024]

Helen Diller Family Comprehensive Cancer Center,  
University of California San Francisco (UCSF),  
1450 3rd St, San Francisco, CA 94158, USA

Email: raunakman.shrestha@ucsf.edu  
Email: shrestha.raunak@naamii.org.np  
Web: <http://raunakms.github.io>  
Publications: [\[Google Scholar\]](#)  
ORCID: 0000-0002-1144-1413

## RESEARCH EXPERIENCE

- 2019 - Current    Post-doctoral Research Fellow,  
**University of California, San Francisco (UCSF)**, San Francisco, CA, USA  
Advisors: [Dr. Felix Y. Feng](#) and [Dr. David Quigley](#)  
Funded by: [Prostate Cancer Foundation \(PCF\) Young Investigator Award](#)
- 2018 - 2019    Post-doctoral Research Fellow, **Vancouver Prostate Centre**,  
**University of British Columbia**, Vancouver, BC, Canada  
Funded by: [Mitacs Accelerate Fellowship](#)  
Advisor: [Dr. Colin C. Collins](#)
- 2009 - 2011    Research Associate, **Center for Molecular Dynamics Nepal**, Kathmandu, Nepal

## EDUCATION

- 2012 - 2018    Doctor of Philosophy in BIOINFORMATICS, **University of British Columbia**, Canada  
**Vancouver Prostate Centre**, Vancouver, BC, Canada  
Advisors: [Dr. Colin C. Collins](#) and [Dr. S. Cenk Sahinalp](#)  
Thesis Title: "[Computational Prioritization of Cancer Driver Genes for Precision Oncology](#)"  
Funded by: [Mitacs Accelerate PhD Fellowship](#)  
Prostate Cancer Foundation - British Columbia (PCF-BC) Research Awards  
Faculty of Science Graduate Award, University of British Columbia  
Canadian Institutes of Health Research (CIHR) Bioinformatics Training Program
- 2011 - 2012    Master of Science in BIOINFORMATICS, **Simon Fraser University**, Canada  
Funded by: Canadian Institutes of Health Research (CIHR) Bioinformatics Training Program  
(Transferred to PhD program)
- 2005 - 2009    Bachelors of Technology (B.Tech.) in BIOTECHNOLOGY, **Kathmandu University**, Nepal

## AFFILIATION

- 2020 - Current    Adjunct Research Scientist (Equivalent to Principal Investigator),  
**Nepal Applied Mathematics & Informatics Institute for Research (NAAMII)**, Lalitpur, Nepal  
leading Computational Genomics Laboratory  
note: this is the first research lab in Nepal focused on computational genomics

## GRANTS AND AWARDS/HONORS

### Fellowship Awards

2022-2025	<a href="#">Prostate Cancer Foundation (PCF) Young Investigator Award</a>	(USD 225,000)
2018-2019	<a href="#">Mitacs Accelerate Fellowship</a>	(CAD 45,000)
2016-2018	<a href="#">Mitacs Accelerate PhD Fellowship</a>	(CAD 135,000)
2015-2016	Prostate Cancer Foundation - British Columbia (PCF-BC) Research Awards	(CAD 25,000)
2014-2016	Faculty of Science Graduate Award, University of British Columbia	(CAD 10,200)
2011-2013	CIHR Bioinformatics Training Program for Health Research.	(CAD 42,000)

## Grants

2024-2026 JIDCUK Trust Funding for Postgraduate Studentship (GBP 32,644)  
(Principal Investigator) NAAMII, Nepal

## Travel Awards

2024 UCSF Helen Diller Family Comprehensive Cancer Center (HDFCCC) Travel Award (USD 1,500)  
2018 UBC Translational Cancer Genomics Travel Award (CAD 2,000)  
2014 International Society for Computational Biology (ISCB) Travel Fellowship (USD 500)

## Fellowship Awards for Trainees

2021-2022 NIHR Early Career Grant, The Royal Society of Tropical Medicine and Hygiene (RSTMH)  
Mr. Parikshit Prasai (GBP 5,000)

## KEY PUBLICATIONS

- [1] **Shrestha, R.**, Chesner, L. N., Zhang, M., Zhou, S., Foye, A., Lundberg, A., Weinstein, A. S., Sjostrom, M., Zhu, X., Moreno-Rodriguez, T., Li, H., SU2C/PCF West Coast Prostate Cancer Dream Team, Alumkal, J. J., Aggarwal, R., Small, E. J., Lupien, M., Quigley, D. A., and Feng, F. Y. *An Atlas of Accessible Chromatin in Advanced Prostate Cancer Reveals the Epigenetic Evolution during Tumor Progression*. **Cancer Research**, 07 2024. ISSN 0008-5472. doi: 10.1158/0008-5472.CAN-24-0890. URL <https://doi.org/10.1158/0008-5472.CAN-24-0890>
- [2] Zhao, S., Bootsma, M., Zhou, S., **Shrestha, R.**, Moreno-Rodriguez, T., Lundberg, A., Pan, C., Arlidge, C., Hawley, J., Foye, A., Weinstein, A., Sjostrom, M., Zhang, M., Li, H., Chesner, L., Rydzewski, N., Helzer, K., Shi, Y., Dehm, S., Lang, J., Alumkal, J., He, H., Wyatt, A., Aggarwal, R., Zwart, W., Small, E., Quigley, D., Lupien, M., and Feng, F. *Interactions between the 3D-genome and DNA, RNA, and epigenomic alterations in metastatic prostate cancer*. **Nature Genetics**, 2024. (In Press)
- [3] **Shrestha, R.**, Fernandez, M. L., Dawson, A., Hoenisch, J., Volik, S., Lin, Y.-Y., Anderson, S., Kim, H., Haegert, A., Colborne, S., Wong, N., McConeghy, B., Bell, R. H., Brahmbhatt, S., Lee, C.-H., DiMattia, G. E., Le Bihan, S., Morin, G. B., Collins, C. C., and Carey, M. S. *Multomics Characterization of Low-grade Serous Ovarian Carcinoma Identifies Potential Biomarkers of MEK-inhibitor Sensitivity and Therapeutic Vulnerability*. **Cancer Research**, 2021. ISSN 0008-5472. doi: 10.1158/0008-5472.CAN-20-2222. URL <https://pubmed.ncbi.nlm.nih.gov/33441310>
- [4] **Shrestha, R.**, Nabavi, N., Volik, S., Anderson, S., Haegert, A., McConeghy, B., Sar, F., Brahmbhatt, S., Bell, R. H., Le Bihan, S., Wang, Y., Collins, C. C., and Churg, A. *Well-Differentiated Papillary Mesothelioma of the Peritoneum is Genetically Distinct from Malignant Mesothelioma*. **Cancers**, 12(6), 06 2020. doi: 10.3390/cancers12061568. URL <https://pubmed.ncbi.nlm.nih.gov/32545767>
- [5] **Shrestha, R.**, Nabavi, N., Lin, Y.-Y., Mo, F., Anderson, S., Volik, S., Adomat, H. H., Lin, D., Xue, H., Dong, X., Shukin, R., Bell, R. H., McConeghy, B., Haegert, A., Brahmbhatt, S., Li, E., Oo, H. Z., Hurtado-Coll, A., Fazli, L., Zhou, J., McConnell, Y., McCart, A., Lowy, A., Morin, G. B., Chen, T., Daugaard, M., Sahinalp, S. C., Hach, F., Le Bihan, S., Gleave, M. E., Wang, Y., Churg, A., and Collins, C. C. *BAP1 Haploinsufficiency Predicts a Distinct Immunogenic Class of Malignant Peritoneal Mesothelioma*. **Genome Medicine**, 2019. doi: 10.1186/s13073-019-0620-3. URL <https://pubmed.ncbi.nlm.nih.gov/30777124>
- [6] Hodzic, E., **Shrestha, R.\***, Zhu, K., Cheng, K., Collins, C. C., and Sahinalp, S. C. Combinatorial detection of conserved alteration patterns for identifying cancer subnetworks. **GigaScience**, 8(4), 04 2019. ISSN 2047-217X. doi: 10.1093/gigascience/giz024. URL <https://pubmed.ncbi.nlm.nih.gov/30978274>. \*As joint first author

- [7] **Shrestha, R.**, Hodzic, E., Sauerwald, T., Dao, P., Wang, K., Yeung, J., Anderson, S., Vandin, F., Haffari, G., Collins, C. C., and Sahinalp, S. C. *HIT'nDRIVE: patient-specific multidriver gene prioritization for precision oncology*. **Genome Research**, 27(9):1573–1588, sep 2017. ISSN 1549-5469. doi: 10.1101/gr.221218.117. URL <https://pubmed.ncbi.nlm.nih.gov/28768687>
- [8] **Shrestha, R.**, Hodzic, E., Yeung, J., Wang, K., Sauerwald, T., Dao, P., Anderson, S., Beltran, H., Rubin, M. A., Collins, C. C., Haffari, G., and Sahinalp, S. C. *HIT'nDRIVE: Multi-driver Gene Prioritization Based on Hitting Time*. *Research in Computational Molecular Biology: 18th Annual International Conference, RECOMB 2014, Pittsburgh, PA, USA, April 2-5, 2014, Proceedings*, pages 293–306, 2014. doi: 10.1007/978-3-319-05269-4\_23. URL [http://dx.doi.org/10.1007/978-3-319-05269-4\\_23](http://dx.doi.org/10.1007/978-3-319-05269-4_23)

## OTHER PUBLICATIONS

- [9] Zhang, M., Sjostrom, M., Cui, X., Foye, A., Farh, K., **Shrestha, R.**, Lundberg, A., Dang, H. X., Febbo, P. G., Aggarwal, R., Alkumal, J., Small, E. J., The SU2C/PCF West Coast Prostate Cancer Dream Team, Maher, C. A., Feng, F. Y., and Quigley, D. A. *Integrative analysis of ultra-deep RNA-seq reveals alternative promoter usage as a mechanism of activating oncogenic programmes during prostate cancer progression*. **Nature Cell Biology**, Jun 2024b. ISSN 1476-4679. doi: 10.1038/s41556-024-01438-3. URL <https://pubmed.ncbi.nlm.nih.gov/38871824>
- [10] Zhu, X., Vis, D. J., Yu, I., Li, H., Sjostrom, M., **Shrestha, R.**, Farsh, T., Kneppers, J., Severson, T., Zhang, M., Lundberg, A., Rodriguez, T. M., Weinstein, A., Foye, A., Mehra, N., Aggarwal, R., Bergman, A., Small, E., Lack, N., Zwart, W., Quigley, D., Heijden, M., and Feng, F. Y. *Genomic and Transcriptomic Features of Resistance to Androgen Receptor Signaling Inhibitors in Metastatic Castration-Resistant Prostate Cancer*. **Journal of Clinical Investigation**, 2024. (In Press)
- [11] Lundberg, A., Zhang, M., Aggarwal, R., Li, H., Zhang, L., Foye, A., Sjostrom, M., Chou, J., Chang, K., Moreno-Rodriguez, T., **Shrestha, R.**, Baskin, A., Zhu, X., Weinstein, A., Younger, N., Alumkal, J., Beer, T., Chi, K., Evans, C., Gleave, M., Lara, P., Reiter, R., Rettig, M., Witte, O., Wyatt, A., Feng, F., Small, E., and Quigley, D. *The genomic and epigenomic landscape of double-negative metastatic prostate cancer*. **Cancer Research**, 2023. ISSN 0008-5472. doi: 10.1158/0008-5472.CAN-23-0593. URL <https://pubmed.ncbi.nlm.nih.gov/37289025>
- [12] Sjostrom, M., Zhao, S. G., Levy, S., Zhang, M., Ning, Y., **Shrestha, R.**, Lundberg, A., Herberts, C., Foye, A., Aggarwal, R. R., Hua, J. T., Li, H., Bergamaschi, A., Maurice-Dror, C., Maheshwari, A., Chen, S., Ng, S., Ye, W., Petricca, J., Fraser, M., Chesner, L., Perry, M., Moreno-Rodriguez, T., Chen, W. S., Alumkal, J. J., Chou, J., Beer, T. M., Gleave, M., Lloyd, P., Phillips, T., McCarthy, E., Haffner, M. C., Zoubeidi, A., Reiter, R. E., Rettig, M. B., Witte, O., Fong, L., Bose, R., Huang, F., Bjartell, A., Lang, J. M., Mahajan, N., Lara, P. N., Evans, C. P., Tran, P., Posadas, E. M., He, C., Cui, X., Huang, J., Zwart, W., Gilbert, L. A., Maher, C. A., Boutros, P. C., Chi, K. N., Ashworth, A., Small, E. J., H, H. H., Wyatt, A. W., Quigley, D. A., and Feng, F. Y. *The 5-Hydroxymethylcytosine Landscape of Prostate Cancer*. **Cancer Research**, 2022. doi: 10.1158/0008-5472.CAN-22-1123. URL <http://www.ncbi.nlm.nih.gov/pubmed/36251389>
- [13] Das, R., Sjostrom, M., **Shrestha, R.**, Yogodzinski, C., Egusa, E. A., Chesner, L. N., Chen, W. S., Chou, J., Dang, D. K., Swinderman, J. T., Ge, A., Hua, J. T., Kabir, S., Quigley, D. A., Small, E. J., Ashworth, A., Feng, F. Y., and Gilbert, L. A. *An integrated functional and clinical genomics approach reveals genes driving aggressive metastatic prostate cancer*. **Nature Communications**, 12(1):4601, 2021. ISSN 2041-1723. doi: 10.1038/s41467-021-24919-7. URL <https://pubmed.ncbi.nlm.nih.gov/34326322>
- [14] Rydzewski, N. R., Peterson, E., Lang, J. M., Yu, M., Laura Chang, S., Sjostrom, M., Bakhtiar, H., Song, G., Helzer, K. T., Bootsma, M. L., Chen, W. S., **Shrestha, R.**, Zhang, M., Quigley, D. A., Aggarwal, R., Small, E. J., Wahl, D. R., Feng, F. Y., and Zhao, S. G. *Predicting cancer drug TARGETS - TreAtment Response Generalized Elastic-neT Signatures*. **NPJ genomic medicine**, 6(1):76, sep 2021. ISSN 2056-7944. doi: 10.1038/s41525-021-00239-z. URL <http://www.ncbi.nlm.nih.gov/pubmed/34548481>
- [15] Hodzic, E., **Shrestha, R.**, Malikic, S., Collins, C. C., Litchfield, K., Turajlic, S., and Sahinalp, C. *Identification of conserved evolutionary trajectories in tumors*. **Bioinformatics**, 36(Supplement1):i427–i435, 07 2020. ISSN 1367-4803. doi: 10.1093/bioinformatics/btaa453. URL <https://pubmed.ncbi.nlm.nih.gov/32657374>

(ISMB 2020)

- [16] ICGC/TCGA Pan-Cancer Analysis of Whole Genomes Consortium. Pan-cancer analysis of whole genomes. *Nature*, 578(7793):82–93, feb 2020b. ISSN 1476-4687. doi: 10.1038/s41586-020-1969-6. URL <https://pubmed.ncbi.nlm.nih.gov/32025007>
- [17] ICGC/TCGA Pan-Cancer Analysis of Whole Genomes Consortium. Analyses of non-coding somatic drivers in 2,658 cancer whole genomes. *Nature*, 578:102–111, feb 2020a. doi: 10.1038/s41586-020-1965-x. URL <https://pubmed.ncbi.nlm.nih.gov/32025015>
- [18] Reyna, M. A., Haan, D., Paczkowska, M., Verbeke, L. P. C., Vazquez, M., Kahraman, A., Pulido-Tamayo, S., Barenboim, J., Wadi, L., Dhingra, P., **Shrestha, R.**, Getz, G., Lawrence, M. S., Pedersen, J. S., Rubin, M. A., Wheeler, D. A., Brunak, S., Izarzugaza, J. M. G., Khurana, E., Marchal, K., von Mering, C., Sahinalp, S. C., Valencia, A., PCAWG Drivers and Functional Interpretation Working Group, Reimand, J., Stuart, J. M., Raphael, B. J., and PCAWG Consortium. Pathway and network analysis of more than 2500 whole cancer genomes. *Nature communications*, 11(1):729, feb 2020. ISSN 2041-1723. doi: 10.1038/s41467-020-14367-0. URL <https://pubmed.ncbi.nlm.nih.gov/32024854>
- [19] Chen, W. S., Haynes, W. A., Waitz, R., Kamath, K., Vega-Crespo, A., **Shrestha, R.**, Zhang, M., Foye, A., Carretero, I. B., Perez, I. G., Zhang, M., Zhao, S. G., Sjöström, M., Quigley, D. A., Chou, J., Beer, T. M., Rettig, M., Gleave, M., Evans, C. P., Lara, P., Chi, K. N., Reiter, R. E., Alumkal, J. J., Aggarwal, R., Small, E. J., Daugherty, P. S., Ribas, A., Oh, D. Y., Shon, J. C., and Feng, F. Y. Autoantibody landscape in patients with advanced prostate cancer. *Clinical Cancer Research*, 2020. doi: 10.1158/1078-0432.CCR-20-1966. URL <https://pubmed.ncbi.nlm.nih.gov/32967941>
- [20] D’Costa, N. M., Cina, D., **Shrestha, R.**, Bell, R. H., Lin, Y.-y., Asghari, H., Monjaras-Avila, C. U., Kollmannsberger, C., Hach, F., Chavez-Munoz, C. I., and So, A. I. Identification of gene signature for treatment response to guide precision oncology in clear-cell renal cell carcinoma. *Scientific Reports*, 10(1):2026, feb 2020a. ISSN 2045-2322. doi: 10.1038/s41598-020-58804-y. URL <https://pubmed.ncbi.nlm.nih.gov/32029828>
- [21] D’Costa, N. M., Lowerison, M. R., Raven, P. A., Tan, Z., Roberts, M. E., **Shrestha, R.**, Urban, M. W., Monjaras-Avila, C. U., Oo, H. Z., Hurtado-Coll, A., Chavez-Munoz, C., and So, A. I. Y-box binding protein-1 is crucial in acquired drug resistance development in metastatic clear-cell renal cell carcinoma. *Journal of experimental & clinical cancer research: CR*, 39(1):33, feb 2020b. ISSN 1756-9966. doi: 10.1186/s13046-020-1527-y. URL <https://pubmed.ncbi.nlm.nih.gov/32041631>
- [22] Yamada, M., Tang, J., Lugo-Martinez, J., Hodzic, E., **Shrestha, R.**, Ouyang, H., Radivojac, P., Sahinalp, C., Menczer, F., Chang, Y., Saha, A., Mamitsuka, H., and Yin, D. *Ultra High-Dimensional Nonlinear Feature Selection for Big Biological Data*. *IEEE Transactions on Knowledge and Data Engineering*, 30(7):1352–1365, 2018. ISSN 1041-4347. doi: 10.1109/TKDE.2018.2789451. URL <https://doi.org/10.1109/TKDE.2018.2789451>
- [23] Gill, E. E., Chan, L. S., Winsor, G. L., Dobson, N., Lo, R., Ho Sui, S. J., Dhillon, B. K., Taylor, P. K., **Shrestha, R.**, Spencer, C., Hancock, R. E. W., Unrau, P. J., and Brinkman, F. S. L. *High-throughput detection of RNA processing in bacteria*. *BMC Genomics*, 19(1):223, 2018. ISSN 1471-2164. doi: 10.1186/s12864-018-4538-8. URL <https://pubmed.ncbi.nlm.nih.gov/29587634>
- [24] Luk, I. S. U., **Shrestha, R.**, Xue, H., Wang, Y., Zhang, F., Lin, D., Haegert, A., Wu, R., Dong, X., Collins, C. C., Zoubeydi, A., Gleave, M. E., Gout, P. W., and Wang, Y. *BIRC6 Targeting as Potential Therapy for Advanced, Enzalutamide-Resistant Prostate Cancer*. *Clinical Cancer Research*, 23(6):1542–1551, mar 2017. ISSN 1078-0432. doi: 10.1158/1078-0432.CCR-16-0718. URL <https://pubmed.ncbi.nlm.nih.gov/27663589>
- [25] Wyatt, A. W., Mo, F., Wang, K., McConeghy, B., Brahmbhatt, S., Jong, L., Mitchell, D. M., Johnston, R. L., Haegert, A., Li, E., Liew, J., Yeung, J., **Shrestha, R.**, Lapuk, A. V., McPherson, A., Shukin, R., Bell, R. H., Anderson, S., Bishop, J., Hurtado-Coll, A., Xiao, H., Chinnaiyan, A. M., Mehra, R., Lin, D., Wang, Y., Fazli, L., Gleave, M. E., Volik, S. V., and Collins, C. C. *Heterogeneity in the inter-tumor transcriptome of high risk*

prostate cancer. **Genome Biology**, 15(8):426, Aug 2014. ISSN 1474-760X. doi: 10.1186/s13059-014-0426-y. URL <https://pubmed.ncbi.nlm.nih.gov/25155515>

- [26] Wang, K., **Shrestha, R.**, Wyatt, A. W., Reddy, A., Lehár, J., Wang, Y., Lapuk, A., and Collins, C. C. *A meta-analysis approach for characterizing pan-cancer mechanisms of drug sensitivity in cell lines*. **PloS One**, 9(7): e103050, 2014. ISSN 1932-6203. doi: 10.1371/journal.pone.0103050. URL <https://pubmed.ncbi.nlm.nih.gov/25036042>
- [27] **Shrestha, R.**, Joshi, R. N., Joshi, K., Poudel, B. H., and Shrestha, B. G. *Analysis of KatG Ser315Thr Mutation in Multidrug Resistant Mycobacterium tuberculosis and SLC11A1 Polymorphism in Multidrug Resistance Tuberculosis in Central Development Region of Nepal Using PCR-RFLP Technique: A Pilot Study*. **Nepal Journal of Biotechnology**, 1(1):14–21, 2011. URL <https://www.nepjol.info/index.php/NJB/article/view/4169>

## MANUSCRIPTS IN SUBMISSION

- [28] Zhang, F., Molokwu, C., **Shrestha, R.\***, Negri, G. L., Bell, R., Suzuki, K., Adomat, H., Saxena, N., Kristensen, A., Colborne, S., Ung, L., Wells, C., Oo, H. Z., Belanger, E., Wang, Y., Collins, C., Morin, G. B., Sorensen, P., Somasekharan, S. P., and Gleave, M. *Proteome remodeling after androgen receptor antagonism supports stress adaptation in prostate cancer*. 2024a. (Under Review). \*As joint first author
- [29] Li, H., Melnyk, J. E., Fu, B. X. H., Feng, S., **Shrestha, R.**, Sjostrom, M., Zhang, M., Chesner, L. N., Calvert, M., Chou, J., Das, R., Egusa, E. A., Zhu, J., Maheshwari, A., Hua, J., Alshalalfa, M., Chen, W. S., Stohr, B., Siddiqui, J., Huang, B., Small, E. J., Ashworth, A., Quigley, D. A., Shokat, K. M., Gilbert, L. A., and Feng, F. Y. *Genome-wide CRISPR screens identify PTGES3 as a druggable AR modulator*. (Under Review), 2022
- [30] Chesner, L. N., Graff, J., Polesso, F., Smith, A., Lundberg, A., Das, R., Shenoy, T., Xia, Z., Hu, Y.-M., Sjostrom, M., Linder, S., Chen, W., Foye, A., **Shrestha, R.**, Li, H., Kim, L., Bhalla, M., Oloughlin, T., Kuzuoglu Ozturk, D., Hua, T., Wilkinson, S., Trostel, S. Y., Bergman, A., Ruggero, D., Sowalsky, A. G., Fong, L., Cooperberg, M., Ashworth, A., Zwart, W., Quigley, D. A., Gilbert, L. A., Moran, A., and Feng, F. Y. *AR inhibition increases MHC Class I expression and improves immune response in prostate cancer*. (Under Review), 2023
- [31] Moreno, T., Zhang, M., Lundberg, A., **Shrestha, R.**, Sjostrom, M., Pasam, A., Chan, J., Foye, A., Weinstein, A., Trigos, A., Wyatt, A., Alumkal, J. J., Small, E. J., Aggarwal, R., Feng, F., Sandhu, S., and Quigley, D. A. *Convergent evolution of extrachromosomal DNA drives therapy resistance in DNA repair-deficient mCRPC*. (Under Review), 2023
- [32] Subramanian, A., Zhang, M., Sharifi, M. N., Rodriguez, T. M., Feng, E., Rydzewski, N. R., **Shrestha, R.**, Zhu, X., Zhao, S., Aggarwal, R. R., Small, E. J., Ding, C.-K. C., Quigley, D. A., and Sjostrom, M. *Association of a prostate cancer gastrointestinal transcriptional phenotype as found in clinical mCRPC samples with response to AR-targeted therapy*. (bioRxiv preprint), 2024. doi: 10.1101/2024.06.02.595931. URL <https://doi.org/10.1101/2024.06.02.595931>. (Under Review)

## THESIS

- **Shrestha, R.** *Computational Prioritization of Cancer Driver Genes for Precision Oncology*. PhD thesis, The University of British Columbia, 2018. URL <https://open.library.ubc.ca/cIRcle/collections/24/items/1.0370936>. Advisors: Dr. Colin C. Collins & Dr. S. Cenk Sahinalp

## PRESENTATIONS

### Selected Oral Talks

- *Inactivation of BAP1 Predicts a Distinct Immunogenic Class of Malignant Peritoneal Mesothelioma*. **Terry Fox Seminar, Vancouver Prostate Centre**. September 28, 2018, Vancouver General Hospital, Vancouver,



Canada.

- *BAP1 Loss Predicts Therapeutic Vulnerability in Malignant Peritoneal Mesothelioma*. **14<sup>th</sup> International Conference of the International Mesothelioma Interest Group (iMig2018)**. May 2-5, 2018, Ottawa, Canada
- *HIT'nDRIVE: Patient-Specific Multi-Driver Gene Prioritization for Precision Oncology*. **8<sup>th</sup> Annual Scientific Meeting, Terry Fox Research Institute**. November 4, 2017, Vancouver, Canada
- *Translating Big-Data to Precision Oncology*. **Terry Fox Seminar, Vancouver Prostate Centre**. February 17, 2017, Vancouver General Hospital, Vancouver, Canada.
- *HIT'nDRIVE: Patient-Specific Multi-Driver Gene Prioritization for Precision Oncology*. **Vancouver Bioinformatics User Group (VanBUG)**. November 3, 2016, Vancouver, Canada
- *HIT'nDRIVE: Patient-Specific Multi-Driver Gene Prioritization for Precision Oncology*. **10<sup>th</sup> Annual Lorne D. Sullivan Lectureship & Research Day**. June 21, 2016, Vancouver General Hospital, Vancouver, Canada.
- *HIT'nDRIVE: Patient-Specific Multi-Driver Gene Prioritization to Guide Precision Cancer Medicine*. **Workshop on Network Biology (Algorithmic Challenges in Genomics)**. April 11-15, 2016, Simons Institute for the Theory of Computing, University of California Berkeley, Berkeley, CA, USA.  
<https://simons.berkeley.edu/talks/raunak-shrestha-04-12-16>
- *Computational Detection and Prioritization of Driver Alterations in Cancer*. **Terry Fox Seminar, Vancouver Prostate Centre**. November 3, 2014, Vancouver General Hospital, Vancouver, Canada.
- *HIT'nDRIVE: Multi-Driver Gene Prioritization based on Hitting Time*. **18<sup>th</sup> Annual International Conference on Research in Computational Molecular Biology (RECOMB)**. April 2-5, 2014, Pittsburgh, PA, USA.

## Selected Poster Presentations

- *An Atlas of Accessible Chromatin in Advanced Prostate Cancer*. **American Association for Cancer Research (AACR) Annual Meeting 2024**. April 5–10, 2024, San Diego, CA, USA.
- *An Atlas of Accessible Chromatin in Advanced Prostate Cancer*. **2023 Gordon Research Conference on Hormone-Dependent Cancers**. August 5–11, 2023, Newry, ME, USA.
- *An Atlas of Accessible Chromatin in Advanced Prostate Cancer*. **30<sup>th</sup> Prostate Cancer Foundation (PCF) Annual Scientific Retreat**. October 26–28, 2023, San Diego, CA, USA.
- *HIT'nDRIVE: Patient-Specific Multi-Driver Gene Prioritization for Precision Oncology*. **4<sup>th</sup> Canadian Cancer Research Conference**. November 4-7, 2017, Vancouver, BC, Canada.
- *HIT'nDRIVE: Patient-Specific Multi-Driver Gene Prioritization for Precision Oncology*. **Genome Informatics**. November 1-4, 2017, Cold Spring Harbor Laboratory, NY, USA.
- *HIT'nDRIVE: Patient-Specific Multi-Driver Gene Prioritization for Precision Oncology*. **The 27<sup>th</sup> International Conference on Genome Informatics**. October 3-5, 2016, Fudan University, Shanghai, China.
- *Characterization of intertumor heterogeneity in Malignant Mesothelioma*. **13<sup>th</sup> International Conference of the International Mesothelioma Interest Group (iMIG 2016)**. May 1-4, 2016, Birmingham, UK.

- *Computational Detection and Prioritization of Driver Alterations in Prostate Cancer from Multi-Omics Data. Eighth Annual Prostate Cancer Program Retreat (SPORE).* March 15-17, 2015, Fort Lauderdale, Florida, USA. (Selected among the top-eight poster of the conference.)
- *Exploring the Biology of Prostate Cancer Progression using Systems Biology Approach. The Eleventh Asia Pacific Bioinformatics Conference.* January 21-23, 2013, Vancouver, Canada.

## RESEARCH INTERESTS

---

Bioinformatics	Cancer Genomics	Prostate Cancer	Sequencing
Immuno-Oncogenomics	Single-cell Genomics	Epigenomics	Precision Oncology
Network Medicine	Infectious Disease Genomics	Machine Learning	Data Science

## SOFTWARE PACKAGES & DATA ANALYTICS

- 
- **HIT'nDRIVE** (<https://github.com/sfu-compbio/hitndrive>)
  - **cd-CAP** (<https://github.com/ehodzic/cd-CAP>)
  - **CONETT** (<https://github.com/ehodzic/CONETT>)
  - **West Coast Dream Team ATAC-seq analysis of mCRPC:** Accessible chromatin landscape of metastatic prostate cancer ([https://github.com/DavidQuigley/WCDT\\_ATAC\\_mCRPC](https://github.com/DavidQuigley/WCDT_ATAC_mCRPC))
  - **Group Segmentation and Diversity** Nudging households towards clean cooking: the role of group segmentation based on diversity in fuel choice ([https://github.com/raunakms/diversity\\_cooking\\_fuel](https://github.com/raunakms/diversity_cooking_fuel))
  - **Happiness in Post-Disaster Reconstruction** What Leads to Satisfaction in Post-Disaster Recovery? ([https://github.com/raunakms/happiness\\_reconstruction](https://github.com/raunakms/happiness_reconstruction))

## TECHNICAL SKILLS

---

Programming Languages	R, perl, python, C, C++
Web Development	php, HTML/5, CSS, JavaScript, R-shiny
Databases & Query Languages	MySQL
Others	CPLEX, GitHub
Molecular Biology	Experienced in routine genomics & proteomics laboratory works

## TRAINEES MENTORED

---

2024 - current	<b>Durga Karki</b> , Research Intern, RIBB, Nepal co-supervision with Research Institute for Bioscience and Biotechnology (RIBB) Current status: MSc in Bioinformatics student at Pokhara Univesity, Nepal
2024 - current	<b>Rasik Dhakal</b> , Research Intern, NAAMII, Nepal Current status: MS in Bioinformatics at University of Texas, Dallas (Starting Aug. 2024)
2023 - current	<b>Peshal Regmi</b> , Research Intern, NAAMII, Nepal
2023 - current	<b>Aayush Ojha</b> , Research Intern, NAAMII, Nepal
2023 - 2024	<b>Sanyukta Chapagain</b> , Research Intern, NAAMII, Nepal
2023	<b>Riya Lamichhane</b> , Phutung Research Institute, Nepal co-supervision with Phutung Research Institute Current status: MS in Health Informatics student at Kathmandu Univesity, Nepal
2021 - 2022	<b>Parikshit Prasai</b> , Research Assistant, NAAMII, Nepal Awarded: NIHR Early Career Grant, The Royal Society of Tropical Medicine and Hygiene (RSTMH), UK Current status: Machine learning engineer in a tech industry in Nepal

- 2020 **Aroj Hada**, Research Intern, NAAMII, Nepal  
Current status: Staff scientist at Institute for Computational Biomedicine, University of Heidelberg, Germany
- 2020 **Rajesh Timilsina**, Research Intern, NAAMII, Nepal  
Current status: MS in Computer science student at Georgia State University, USA
- 2017 - 2019 **Hossein Sharifi-Noghabi**, Ph.D. Student, Computer Science. Simon Fraser University, Canada  
Current status: Machine learning researcher, BorealisAI, Canada

## ACADEMIC COMMUNITY SERVICE

---

### Journal Editorial Board

2014 - [Nepal Journal of Biotechnology \(NJB\)](#) Editor

### Professional Organization

2023-	<a href="#">American Association for Cancer Research (AACR)</a>	Associate Member
2013-2019	<a href="#">Vancouver Bioinformatics User Group (VanBUG)</a>	Development Group
2009-2011	<a href="#">Biotechnology Society of Nepal (BSN)</a>	Executive Board Member/Lifetime Member

### Peer Reviews

(number of reviews parenthesized)

**Grants:** PCF Young Investigator Award (4); PCF Challenge Award (3)

**Academic Papers:** Nature (1); Science (3); Nature Communications (3); Bioinformatics (3); Bioinformatics Advances (1); Cancer Research (2); Genome Medicine (1); European Urology (1); BMC Genomics (1); BMC Bioinformatics (1); Cancers (1); Neoplasia (1); Frontiers in Oncology (1); The American Journal of Human Genetics (AJHG) (1); Research in Computational Molecular Biology (RECOMB) (3); International Conference on Intelligent Systems for Molecular Biology (ISMB) (1); The Asia Pacific Bioinformatics Conference (APBC) (1); Workshop on Algorithms in Bioinformatics (WABI) (1); International Conference on Computational Advances in Bio and medical Sciences (ICCABS) (1); International Journal of Cancer (IJC) (1); Nepal Journal of Biotechnology (8)

## REFERENCES

---

References can be made available upon request

Last Updated: July 11, 2024