Antony Holmes

Data Scientist, New York

Data scientist and full stack software developer with 8 years experience developing open source software and applications for cancer genetics research. Experienced in the full software development life-cycle from requirement definition, prototyping, design, interface implementation, and maintenance. Excellent written and oral communication skills demonstrated by 30 publications.

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SKILLS

Java | Python | React | Gatsby | TypeScript | PostgreSQL | R | MATLAB | EC2 | S3 | Lambda | CloudFront | SGE

EDUCATION

Ph.D Mathematical Biology
University of Warwick UK

B.Sc Computer Science
University of Warwick UK
First-class honours

AWARDS

SIWN Best Paper Award
2009, Leipzig

WORK HISTORY

Senior Bioinformatics Developer

Columbia University | 2015 - Present

Migrated core genomic applications onto AWS cloud infrastructure using **EC2**, **Docker**, **S3** reducing costs by **90%**.

Created departmental web site using **Gatsby**+**Typescript** to ease deployment and updates to reduce costs by **80%**.

Associate Research Scientist

Columbia University | 2012 - 2015

Developed data pipelines using **Python**, and **R** to analyze RNA-seq, Chip-seq, and single cell genomic data and reduce analysis time from days/weeks to **hours**.

Published over **25** articles on B-cell development and cancer genetics in high impact journals, including Nature, Cell, Blood, PNAS, and the New England Journal of Medicine.

Post Doctoral Research Scientist

Columbia University | 2009 - 2012

Administrator of research version of the New York Presbyterian Hospital electronic health records (EHR) database for data mining.

Studied the predictive power of hospital records for discovering novel relationships between rare diseases and co-morbidities resulting in three publications.

VOLUNTEERING

Tax Team Leader

New York Cares | 2017 - Present

Certified as IRS tax team leader to help New Yorkers file tax returns for free during tax season.

Work with clients one-on-one to understand their tax situation and prepare their federal and state returns saving them **$100,000** in fees per year.

PUBLICATIONS

1. Super-enhancer hypermutation alters oncogene expression in B cell lymphoma

Bal E, Kumar R, Hadigol M, **Holmes AB**, Hilton LK, Loh JW, Dreval K, Wong JCH, Vlasevska S, Corinaldesi C, Soni RK, Basso K, Morin RD, Khiabanian H, Pasqualucci L, Dalla-Favera R

Nature. 2022.

2. Tracking Immunoglobulin Repertoire and Transcriptomic Changes in Germinal Center B Cells by Single-Cell Analysis

Corinaldesi C, **Holmes AB**, Shen Q, Grunstein E, Pasqualucci L, Dalla-Favera R, Basso K

Frontiers in immunology. 2022.

3. Mutations in the transcription factor FOXO1 mimic positive selection signals to promote germinal center B cell expansion and lymphomagenesis

Roberto MP, Varano G, Vinas-Castells R, **Holmes AB**, Kumar R, Pasqualucci L, Farinha P, Scott DW, Dominguez-Sola D

Immunity. 2021.

4. miR-939 acts as tumor suppressor by modulating JUNB transcriptional activity in pediatric anaplastic large cell lymphoma

Garbin A, Lovisa F, **Holmes AB**, Damanti CC, Gallingani I, Carraro E, Accordi B, Veltri G, Pizzi M, d'Amore ESG, Pillon M, Biffi A, Basso K, Mussolin L

Haematologica. 2021.

5. Single-cell analysis of germinal-center B cells informs on lymphoma cell of origin and outcome

Holmes AB, Corinaldesi C, Shen Q, Kumar R, Compagno N, Wang Z, Nitzan M, Grunstein E, Pasqualucci L, Dalla-Favera R, Basso K

The Journal of experimental medicine. 2020.

6. Unique and Shared Epigenetic Programs of the CREBBP and EP300 Acetyltransferases in Germinal Center B Cells Reveal Targetable Dependencies in Lymphoma

Meyer SN, Scuoppo C, Vlasevska S, Bal E, **Holmes AB**, Holloman M, Garcia-Ibanez L, Nataraj S, Duval R, Vantrimpont T, Basso K, Brooks N, Dalla-Favera R, Pasqualucci L

Immunity. 2019.

7. MEF2B Instructs Germinal Center Development and Acts as an Oncogene in B Cell Lymphomagenesis

Brescia P, Schneider C, **Holmes AB**, Shen Q, Hussein S, Pasqualucci L, Basso K, Dalla-Favera R

Cancer cell. 2018.

8. Common nonmutational NOTCH1 activation in chronic lymphocytic leukemia

Fabbri G, **Holmes AB**, Viganotti M, Scuoppo C, Belver L, Herranz D, Yan XJ, Kieso Y, Rossi D, Gaidano G, Chiorazzi N, Ferrando AA, Dalla-Favera R

Proceedings of the National Academy of Sciences. 2017.

9. The CREBBP Acetyltransferase Is a Haploinsufficient Tumor Suppressor in B-cell Lymphoma

Zhang J, Vlasevska S, Wells VA, Nataraj S, **Holmes AB**, Duval R, Meyer SN, Mo T, Basso K, Brindle PK, Hussein S, Dalla-Favera R, Pasqualucci L

Cancer discovery. 2017.

PUBLICATIONS

10. The genetics of nodal marginal zone lymphoma

Spina V, Khiabanian H, Messina M, Monti S, Cascione L, Bruscaggin A, Spaccarotella E, **Holmes AB**, Arcaini L, Lucioni M, Tabbo F, Zairis S, Diop F, Cerri M, Chiaretti S, Marasca R, Ponzoni M, Deaglio S, Ramponi A, Tiacci E, Pasqualucci L, Paulli M, Falini B, Inghirami G, Bertoni F, Foa R, Rabadan R, Gaidano G, Rossi D
Blood. 2016.

11. Prognostic and therapeutic role of targetable lesions in B-lineage acute lymphoblastic leukemia without recurrent fusion genes

Messina M, Chiaretti S, Wang J, Fedullo AL, Peragine N, Gianfelici V, Piciocchi A, Brugnoletti F, Di Giacomo F, Pauselli S, **Holmes AB**, Puzzolo MC, Ceglie G, Apicella V, Mancini M, Te Kronnie G, Testi AM, Vitale A, Vignetti M, Guarini A, Rabadan R, Foa R
Oncotarget. 2016.

12. The FOXO1 Transcription Factor Instructs the Germinal Center Dark Zone Program

Dominguez-Sola D, Kung J, **Holmes AB**, Wells VA, Mo T, Basso K, Dalla-Favera R
Immunity. 2015.

13. Disruption of KMT2D perturbs germinal center B cell development and promotes lymphomagenesis

Zhang J, Dominguez-Sola D, Hussein S, Lee JE, **Holmes AB**, Bansal M, Vlasevska S, Mo T, Tang H, Basso K, Ge K, Dalla-Favera R, Pasqualucci L
Nature medicine. 2015.

14. An aberrant microRNA signature in childhood T-cell lymphoblastic lymphoma affecting CDKN1B expression, NOTCH1 and growth factor signaling pathways

Mussolin L, **Holmes AB**, Romualdi C, Sales G, D'Amore ES, Ghisi M, Pillon M, Rosolen A, Basso K
Leukemia. 2014.

15. MicroRNA 28 controls cell proliferation and is down-regulated in B-cell lymphomas

Schneider C, Setty M, **Holmes AB**, Maute RL, Leslie CS, Mussolin L, Rosolen A, Dalla-Favera R, Basso K
Proceedings of the National Academy of Sciences. 2014.

16. Genetic lesions associated with chronic lymphocytic leukemia chemo- refractoriness

Messina M, Del Giudice I, Khiabanian H, Rossi D, Chiaretti S, Rasi S, Spina V, **Holmes AB**, Marinelli M, Fabbri G, Piciocchi A, Mauro FR, Guarini A, Gaidano G, Dalla-Favera R, Pasqualucci L, Rabadan R, Foa R
Blood. 2014.

17. Genetics of follicular lymphoma transformation

Pasqualucci L, Khiabanian H, Fangazio M, Vasishtha M, Messina M, **Holmes AB**, Ouillette P, Trifonov V, Rossi D, Tabbo F, Ponzoni M, Chadburn A, Murty VV, Bhagat G, Gaidano G, Inghirami G, Malek SN, Rabadan R, Dalla-Favera R
Cell reports. 2014.

18. Genetic lesions associated with chronic lymphocytic leukemia transformation to Richter syndrome

Fabbri G, Khiabanian H, **Holmes AB**, Wang J, Messina M, Mullighan CG, Pasqualucci L, Rabadan R, Dalla-Favera R
The Journal of experimental medicine. 2013.

PUBLICATIONS

19. tRNA-derived microRNA modulates proliferation and the DNA damage response and is down-regulated in B cell lymphoma

Maute RL, Schneider C, Sumazin P, Holmes A, Califano A, Basso K, Dalla-Favera R

Proceedings of the National Academy of Sciences. 2013.

20. BCL6 positively regulates AID and germinal center gene expression via repression of miR-155

Basso K, Schneider C, Shen Q, **Holmes AB**, Setty M, Leslie C, Dalla-Favera R

The Journal of experimental medicine. 2012.

21. Identification of human germinal center light and dark zone cells and their relationship to human B-cell lymphomas

Victora GD, Dominguez-Sola D, **Holmes AB**, Deroubaix S, Dalla-Favera R, Nussenzweig MC

Blood. 2012.

22. Combined genetic inactivation of beta2-Microglobulin and CD58 reveals frequent escape from immune recognition in diffuse large B cell lymphoma

Challa-Malladi M, Lieu YK, Califano O, **Holmes AB**, Bhagat G, Murty VV, Dominguez-Sola D, Pasqualucci L, Dalla-Favera R

Cancer cell. 2011.

23. Whole-exome sequencing identifies somatic mutations of BCOR in acute myeloid leukemia with normal karyotype

Grossmann V, Tiacci E, **Holmes AB**, Kohlmann A, Martelli MP, Kern W, Spanhol-Rosseto A, Klein HU, Dugas M, Schindela S, Trifonov V, Schnittger S, Haferlach C, Bassan R, Wells VA, Spinelli O, Chan J, Rossi R, Baldoni S, De Carolis L, Goetze K, Serve H, Peceny R, Kreuzer KA, Oruzio D, Specchia G, Di Raimondo F, Fabbiano F, Sborgia M, Liso A, Farinelli L, Rambaldi A, Pasqualucci L, Rabadan R, Haferlach T, Falini B

Blood. 2011.

24. Discovery of cyanophage genomes which contain mitochondrial DNA polymerase

Chan YW, Mohr R, Millard AD, **Holmes AB**, Larkum AW, Whitworth AL, Mann NH, Scanlan DJ, Hess WR, Clokie MR

Molecular biology and evolution. 2011.

25. Discovering disease associations by integrating electronic clinical data and medical literature

Holmes AB, Hawson A, Liu F, Friedman C, Khiabanian H, Rabadan R

PloS one. 2011.

26. BRAF mutations in hairy-cell leukemia

Tiacci E, Trifonov V, Schiavoni G, Holmes A, Kern W, Martelli MP, Pucciarini A, Bigerna B, Pacini R, Wells VA, Sportoletti P, Pettirossi V, Mannucci R, Elliott O, Liso A, Ambrosetti A, Pulsoni A, Forconi F, Trentin L, Semenzato G, Inghirami G, Capponi M, Di Raimondo F, Patti C, Arcaini L, Musto P, Pileri S, Haferlach C, Schnittger S, Pizzolo G, Foa R, Farinelli L, Haferlach T, Pasqualucci L, Rabadan R, Falini B

The New England journal of medicine. 2011.

27. Network analysis of global influenza spread

Chan J, Holmes A, Rabadan R

PLoS computational biology. 2010.

PUBLICATIONS

28. Signs of the 2009 influenza pandemic in the New York-Presbyterian Hospital electronic health records

Khiabanian H, **Holmes AB**, Kelly BJ, Gururaj M, Hripcsak G, Rabadan R
PloS one. 2010.

29. Spatial simulations of myxobacterial development

Holmes AB, Kalvala S, Whitworth DE
PLoS computational biology. 2010.

30. Phosphate acquisition components of the Myxococcus xanthus Pho regulon are regulated by both phosphate availability and development

Whitworth DE, **Holmes AB**, Irvine AG, Hodgson DA, Scanlan DJ
Journal of bacteriology. 2008.

REFERENCES

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