Antony Holmes

Software Engineer

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 more than 25 publications.

SKILLS

Programming Languages

Java	Python	Web	Databases
Swing, Spring Boot, Maven	Pandas, Numpy, Scikit-learn, Django	React, Electron, Gatsby, NextJS, TypeScript	PostgreSQL, MySQL, Sqlite

Math

R, MATLAB

Software Development

AWS	Development	Cluster	Office
EC2, S3, Lambda, CloudFront, API Gateway	Visual Studio Code, Eclipse, GitHub	SGE, BSUB	Microsoft Office with VBA, LaTeX, Inkscape, Photoshop, Illustrator

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 Institute for Cancer Genetics departmental web site using **Gatsby**+**Typescript** to implement modern web standards, ease deployment and updates, and reduce costs by 80%.
- Developed multi-user database genomic web applications running on AWS using **Django**, and **Postgresql** to allow users remote access to core lab data and analysis to improve productivity.

Associate Research Scientist

Columbia University | 2012 - 2015

- Developed cluster based data pipelines using **Python**, **R**, and **BASH** to analyze microarray, SNP 6.0, RNA-seq, Chip-seq, and single cell genomic data that reduced processing time from days/weeks to **hours**.
- Created Java desktop applications for scientists to analyse data

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(347) 688-5690

github.com/antonybholmes

EDUCATION

Ph.D Mathematical Biology
University of Warwick UK

M.Sc Computer Science
University of Warwick UK

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

AWARDS

SIWN Best Paper Award
2009, Leipzig

VOLUNTEERING

Tax Team Leader

New York Cares | 2017 - Present

- Certified as IRS tax preparer 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.
- Manage a small team of volunteers as liaison between New York Cares and partner organizations.
- Save clients **$100,000** in fees per year.

on their own available on GitHub.

- 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

- Served as database administrator and created research version of the New York Presbyterian Hospital electronic health records (EHR) for data mining.
- Studied patterns of influenza to look for predictive power in hospital records for New York public health.
- Discovered novel relationships between rare diseases and co-morbidities which were developed into **MATLAB** and **Java** applications to offer potential avenues for new therapeutics. This work resulted in three publications.

EDUCATION

PH.D MATHEMATICAL BIOLOGY

2009, University of Warwick UK

SIWN Best Paper Award

M.SC COMPUTER SCIENCE

2004, University of Warwick UK

B.SC COMPUTER SCIENCE

2003, University of Warwick UK

First-class honours

VOLUNTEERING

Tax Team Leader

New York Cares | 2017-present

IRS certified tax preparer helping New Yorkers file their 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.
Save clients **$30,000** in fees per year.
Manage a small team of volunteers and act as a liaison between New York Cares and partner organizations.
Quality review tax returns for accuracy before filing.

Tax Team Leader

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SIWN Best Paper Award

B.SC COMPUTER SCIENCE
2003, University of Warwick UK
First-class honours

M.SC COMPUTER SCIENCE
2004, University of Warwick UK

Programming Languages

Java
Swing, JavaFX, Apache-Math, Spring Boot, Maven

Python
Pandas, Numpy, Scikit-learn, Django

Web
Node, React, Electron, Gatsby, JSX, TypeScript, HTML/CSS

Databases
PostgreSQL, MySQL, Sqlite

Math
R, MATLAB

Software Development

AWS
EC2, S3, Lambda, CloudFront, API Gateway

Development
Eclipse, Visual Studio Code, Git

Cluster
SGE, BSUB

Office
Microsoft Office with VBA, LaTeX,

Inkscape, Photoshop, Illustrator

High-throughput Sequencing Tools

Bowtie, Hisat2, STAR, ChIPseeqer, 10x Cell Ranger

GSEA, GenePattern, BLAST

Source code for this resume is available at: github.com/antonyholmes/resume

1. 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
J Exp Med. 2020.

2. 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. 2020.

3. 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.

4. 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.

5. 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
Proc Natl Acad Sci U S A. 2017.

6. 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 Discov. 2017.

7. 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, Tabbò F, Zairis S, Diop F, Cerri M, Chiaretti S, Marasca R, Ponzoni M, Deaglio S, Romponi A, Tiacci E, Pasqualucci L, Paulli M, Falini B, Inghirami G, Bertoni F, Foà R, Rabadan R, Gaidano G, Rossi D
Blood. 2016.

8. 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, Foà R
Oncotarget. 2016.

9. 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.

10. Genomic and proteomic characterization of two novel siphovirus infecting the sedentary facultative epibiont cyanobacterium Acaryochloris marina
Chan YW, Millard AD, Wheatley PJ, Holmes AB, Mohr R, Whitworth AL, Mann NH, Larkum AW, Hess WR, Scanlan DJ, Clokie MR
Environ Microbiol. 2015.

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

Prof. Riccardo Dalla-Favera
Institute for Cancer Genetics
Columbia University
New York
rd10@columbia.edu

Prof. Katia Basso
Institute for Cancer Genetics
Columbia University
New York
kb451@cumc.columbia.edu

Prof. Raul Rabadan
Department of Systems Biology
Columbia University
New York
rr2579@cumc.columbia.edu

13. Genetic lesions associated with chronic lymphocytic leukemia chemorefractoriness
Damm F, Mylonas E, Cosson A, Yoshida K, Della Valle V, Mouly E, Diop M, Scourzic L, Shiraishi Y, Chiba K, Tanaka H, Miyano S, Ogawa S, Quesnel B, Bernard OA, Fontenay M
Leukemia. 2014.

14. Genetics of follicular lymphoma transformation
Pasqualucci L, Khiabanian H, Fangazio M, Vasishtha M, Messina M, Holmes AB, Ouillette P, Trifonov V, Rossi D, Tabbò F, Ponzoni M, Chadburn A, Murty VV, Bhagat G, Gaidano G, Inghirami G, Malek SN, Rabadan R, Dalla-Favera R
Cell Rep. 2014.

15. 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
J Exp Med. 2013.

16. 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
Proc Natl Acad Sci U S A. 2013.

17. 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
J Exp Med. 2012.

18. 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.

19. The coding genome of splenic marginal zone lymphoma: activation of NOTCH2 and other pathways regulating marginal zone development
Rossi D, Trifonov V, Fangazio M, Bruscaggin A, Rasi S, Spina V, Monti S, Vaisitti T, Arruga F, Famà R, Ciardullo C, Greco M, Cresta S, Piranda D, Holmes A, Fabbri G, Messina M, Rinaldi A, Wang J, Agostinelli C, Piccaluga PP, Lucioni M, Tabbò F, Serra R, Franceschetti S, Deambrogi C, Daniele G, Gattei V, Marasca R, Facchetti F, Arcaini L, Inghirami G, Bertoni F, Pileri SA, Deaglio S, Foà R, Dalla-Favera R, Pasqualucci L, Rabadan R, Gaidano G
J Exp Med. 2012.

20. Combined genetic inactivation of β2-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.

21. 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.

22. 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
Mol Biol Evol. 2011.

23. 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, Foà R, Farinelli L, Haferlach T, Pasqualucci L, Rabadan R, Falini B
N Engl J Med. 2011.

24. Spatial simulations of myxobacterial development
Holmes AB, Kalvala S, Whitworth DE
PLoS Comput Biol. 2010.

26. 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.

27. 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.

28. 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
J Bacteriol. 2008.