

# Jordi Abante

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The Johns Hopkins University

Whitaker Biomedical Engineering Institute (CIS)

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## RESEARCH INTERESTS

Statistical Inference, Machine Learning, Genetics, Epigenetics.

## LANGUAGES

Catalan (native), Spanish (native), English (proficient), French (basic).

## SKILLS

julia, python, R, bash, perl, C++, Matlab, L<sup>A</sup>T<sub>E</sub>X.

## EDUCATION

### **The Johns Hopkins University**

Baltimore, Maryland, U.S.

- Ph.D., Electrical and Computer Engineering 8/2016 - 8/2021<sup>1</sup>
- M.S.E., Applied Mathematics and Statistics 8/2016 - 12/2018
- Teaching Institute Certificate 6/2020 - 3/2021

### **Texas A&M University**

College Station, TX, U.S.

- M.S., Electrical and Computer Engineering 8/2014 - 5/2016
- Business Management Certificate 5/2015 - 6/2015

### **Polytechnic University of Catalonia**

Barcelona, Catalonia, Spain

- B.S., Industrial Engineering 9/2008 - 5/2014

## RESEARCH EXPERIENCE

### **Research Assistant**

9/2016 - Present

Whitaker Biomedical Engineering Institute (CIS)

The Johns Hopkins University, Baltimore MD, U.S.

- Computational biology
- Genomics & epigenetics data modeling & analysis
- Statistical inference & machine learning

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<sup>1</sup>Expected graduation.

**Research Assistant**

9/2014 - 1/2015, 6/2015 - 5/2016

Center for Bioinformatics and Genomic Systems Engineering

Texas A&amp;M University, College Station, TX, U.S.

- Computational biology
- Genome & transcriptome data modeling & analysis
- Statistical inference & machine learning

**Team Leader & Member**

8/2012 - 8/2014

ETSEIB Motorsport Formula Student Team

Polytechnic University of Catalonia

Barcelona, Catalonia, Spain

- Power electronics R&D
- Electric vehicle R&D

PEER  
REVIEWED  
JOURNAL  
ARTICLES

M. Koldobskiy, G. Jenkinson, **J. Abante**, V.A. Rodriguez DiBlasi, W. Zhou, E. Pujadas, A. Idrizi, R. Tryggvadottir, C. Callahan, C. Bonifant, K. Rabin, P.A. Brown, H. Ji, J. Goutsias, and A.P. Feinberg.. “An information-theory analysis of DNA methylation identifies converging genetic and epigenetic drivers of pediatric acute lymphoblastic leukemia”. *Nature Biomedical Engineering* 5.4 (2021): 360-376.

**J. Abante**, Y. Fang, A.P. Feinberg, J. Goutsias. “Detection of haplotype-dependent allele-specific DNA methylation in WGBS data”. *Nature Communications* 11, 5238 (2020). **Featured in Nature Communications Editors’ Highlights.**

C. Qiu, H. Jin, I. Vvedenskaya, **J. Abante**, T. Zhao, I. Malik, S. Schwartz, P. Cui, P. Cabart, K. Hoo, R.P. Metz, C.D. Johnson, S. Sze, B.F. Pugh, B.E. Nickels, C.D. Kaplan. “Universal promoter scanning by Pol II during transcription initiation in *Saccharomyces cerevisiae*”. *Genome Biology* (2020), 21:132.

M. Koldobskiy, **J. Abante**, G. Jenkinson, E. Pujadas, A. Tetens, F. Zhao, R. Tryggvadottir, A. Idrizi, A. Reinisch, R. Majeti, J. Goutsias, and A. P. Feinberg. “A Dysregulated DNA Methylation Landscape Linked to Gene Expression in MLL-Rearranged AML”. *Epigenetics* (2020), 1-18.

M. P. Menden, D. Wang, M. J. Mason, B. Szalai, K. C. Bulusu, Y. Guan, J. Kang, M. Jeon, R. Wolfinger, T. Nguyen, M. Zaslavskiy, **J. Abante**, et al. “Community assessment to advance computational prediction of cancer drug combinations in a pharmacogenomic screen.” *Nature Communications* 10, 2674 (2019).

G. Jenkinson, **J. Abante**, M. Koldobskiy, A. P. Feinberg, J. Goutsias. “Ranking genomic features using an information-theoretic measure of epigenetic discordance”. *BMC Bioinformatics* (2019), 20:175.

G. Jenkinson, **J. Abante**, A. P. Feinberg, J. Goutsias. “An information-theoretic approach to the modeling and analysis of whole-genome bisulfite sequencing data”. *BMC Bioinformatics* (2018), 19:87.

**J. Abante**, N. Ghaffari, C.D. Johnson, A. Datta. “HiMMe: using genetic patterns as a proxy for genome assembly reliability assessment.” *BMC Genomics* (2017), 18:694.

PREPRINT

**J. Abante**, S. Kambhampati, A.P. Feinberg, J. Goutsias. “Estimating DNA methylation potential energy landscapes from nanopore sequencing data”. *bioRxiv* (2021), 431480.

**J. Abante**, J. Goutsias. “CpelTdm.jl: a Julia package for targeted differential DNA methylation analysis”. *bioRxiv* (2020), 343020.

C. Qiu, H. Jin, I. Vvedenskaya, **J. Abante**, T. Zhao, I. Malik, A.M. Visbisky, S.L. Schwartz, P. Cui, P. Čabart, K.H. Han, W.K.M. Lai, R.P. Metz, C.D. Johnson, S.H. Sze, B.F. Pugh, B.E. Nickels, C.D. Kaplan. “Promoter scanning during transcription initiation in *Saccharomyces cerevisiae*: Pol II in the “shooting gallery””. *bioRxiv* (2019), 810127.

N. Ghaffari, **J. Abante**, R. Singh, P. D. Blood, L. Pipes, C. Mason, C. D. Johnson. “What are the most influencing factors in reconstructing a reliable transcriptome assembly?”. *bioRxiv* (2017), 220269.

PEER  
REVIEWED  
CONFERENCE  
PROCEEDINGS

P. Blood, N. Ghaffari, A. S. Seetharam, L. Pipes, R. Singh, **J. Abante**, A. Severin, C. D. Johnson, C. Mason. “Fast, flexible, and free: enabling large-scale genome assembly and analysis with the Bridges supercomputer”. *In Plant and Animal Genome XXVI Conference*, San Diego, CA, U.S., 2018.

N. Ghaffari, **J. Abante**, R. Singh, P. D. Blood, C. D. Johnson. “Computational considerations in transcriptome assemblies and their evaluation, using high quality human RNA-Seq data”. *XSEDE16: Extreme Science and Engineering Discovery Environment 2016 Conference*, Miami, FL, U.S., 2016.

CONFERENCES **J. Abante**. “Statistical modeling and analysis of allele-specific DNA  
SEMINARS methylation at the haplotype level”. *Electrical & Computer Engineering  
WORKSHOPS Departmental Seminars*, The Johns Hopkins University, Baltimore, MD, U.S., 2019.

**J. Abante**, N. Ghaffari, C.D. Johnson, A. Datta. “Using hidden Markov models to analyze next-generation sequencing data”. *ENG-LIFE 2016: At the Interface of Engineering and Life Sciences*, College Station, TX, U.S., 2016.

INVITED TALKS	Salzman Lab @ Stanford University - Group Meeting	11/2020
	Yosef Lab @ Berkeley University - Group Meeting	11/2020
	Gerstein Lab @ Yale University - Group Meeting	11/2020
	Knowles Lab @ Columbia University - Group Meeting	10/2020
	Marks Lab @ Harvard University - Group Meeting	10/2020

TEACHING & MENTORING	<b>Undergraduate Student Mentor</b>	Fall 2020, Spring 2021
	Whiting School of Engineering The Johns Hopkins University, Baltimore, MD, U.S. <ul style="list-style-type: none"> <li>• Mentored Sandeep Kambhampati, senior in Biomedical Engineering</li> <li>• Johns Hopkins University PURA grant awarded to Sandeep</li> </ul>	
	<b>Course Assistant &amp; Guest Lecturer</b>	Fall 2018, 2019, 2020
	EN.520.622. Principles of Complex Networked Systems Whiting School of Engineering The Johns Hopkins University, Baltimore, MD, U.S. <ul style="list-style-type: none"> <li>• Guest lecturer (Fall 2020)</li> <li>• Graded assignments and exams</li> <li>• Provided students with one-on-one tutoring and out of class assistance</li> </ul>	

	<b>Teaching Assistant &amp; Guest Lecturer</b> ENGR-112 Foundations of Engineering II Dwight Look College of Engineering Texas A&M University, College Station, TX, U.S. <ul style="list-style-type: none"> <li>• Guest lecturer</li> <li>• Responsible of grading by managing a team of grading assistants</li> <li>• Provided students with one-on-one tutoring and out of class assistance</li> </ul>	Spring 2015
FELLOWSHIPS	<b>“la Caixa” Fellowship</b> “la Caixa” Foundation, Barcelona, Catalonia, Spain <ul style="list-style-type: none"> <li>• One of 50 students selected across Spain for competitive merit scholarship</li> <li>• Covered tuition fees plus monthly allowance for a 2-year period</li> <li>• Total monetary value of fellowship was \$250,000</li> </ul>	8/2016 - 8/2017
INDUSTRY EXPERIENCE	<b>R&amp;D Engineer</b> Sensory Value Sant Cugat del Vallès, Catalonia, Spain <ul style="list-style-type: none"> <li>• Machine learning applied to market research</li> </ul>	5/2016 - 8/2016
	<b>R&amp;D Engineer</b> Cinergia, Control Intel·ligent de l'Energia Barcelona, Catalonia, Spain <ul style="list-style-type: none"> <li>• Power electronics R&amp;D for EV applications</li> </ul>	3/2013 - 5/2014
AWARDS & HONORS	<b>Best Thesis Award</b> Polytechnic University of Catalonia Barcelona, Catalonia, Spain  <b>Golden Key Honor Society</b> Texas A&M University, College Station, Texas, U.S.  <b>Phi Kappa Phi</b> Texas A&M University, College Station, Texas, U.S.  <b>IEEE-Eta Kappa Nu Honor Society</b> Texas A&M University, College Station, Texas, U.S.	5/2015  5/2016  4/2016  1/2016

UNIVERSITY SERVICE	<b>ECE Department Head Search</b> Spring 2021 Johns Hopkins University Baltimore, Maryland, U.S. <ul style="list-style-type: none"> <li>• Participated in the interview process of 8 candidates</li> <li>• Participated in discussions after each interview</li> <li>• Provided feedback after each interview to search firm</li> </ul>
COMMUNITY SERVICE	<b>Voluntariat per la llengua</b> Fall 2020, Spring 2021 Baltimore, Maryland, U.S. <ul style="list-style-type: none"> <li>• Program by the Department of Culture, Catalan Government</li> <li>• Language partner for people interested in learning Catalan</li> </ul> <b>Our Daily Bread Volunteer</b> 2020 Baltimore, Maryland, U.S. <ul style="list-style-type: none"> <li>• Cooked food for families in need during COVID 19 pandemic</li> </ul> <b>Barclay Hopkins STEM Partnership</b> 2017 The Johns Hopkins University, Baltimore, Maryland, U.S. <ul style="list-style-type: none"> <li>• Worked with elementary school students to engage them in STEM</li> <li>• Assembled light-tracking robots for student activities</li> </ul> <b>The Big Event</b> 2015-2016 Texas A&M University, College Station, Texas, U.S. <ul style="list-style-type: none"> <li>• Provided yard work and window washing for elderly residents</li> </ul> <b>Grup de voluntariat ANTAR</b> 2006-2008 Àgora International School, Sant Cugat del Vallès, Catalonia, Spain <ul style="list-style-type: none"> <li>• Organized fundraising activities and food drives for people in need</li> <li>• Distributed and served food in several soup kitchens in Barcelona</li> </ul>
PEER REVIEWER	IEEE Access
REFERENCES	Available upon request.