Carlos Martinez

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Education

Georgia Institute of Technology
Master of Science
Electrical & Computer Engineering
Aug. 2016 – May 2018
3.6 GPA

New York University
Bachelor of Science
Mathematics
Sept. 2011 – Dec. 2015
3.7 GPA; Magna Cum Laude
Minors: Computer Science, Electrical Engineering, Nuclear Science & Engineering

Selected graduate classes: statistical machine learning, convex optimization, digital image processing, random processes, advanced digital signal processing, information theory, computer communication networks

Employment

Assistant Research Technician May 2014 – July 2016
NYU Langone Medical Center, Cancer Institute New York, New York

- Researcher acting in a bioinformatic and statistical capacity for the Kirchhoff Lab specializing in cancer genetics
- Implement genomic data processing pipelines for next-generation sequencing using e.g. GATK, SAMtools, BWA, Cufflinks, VEP
- Perform statistical association tests for variant-disease interactions, expression-disease interactions, and survival analyses
- Conduct exploratory analyses with visualizations and descriptive statistics to discover novel trends in high-risk populations
- Utilize a high-performance computing cluster running on Sun Grid Engine to achieve the above computations
- Secondary responsibilities include grant and manuscript preparation, project presentations, and student mentorship

(Head) Teaching Assistant Head TA: May 2017 – Dec. 2017; TA: Aug. 2016 – May 2017
Georgia Institute of Technology Atlanta, Georgia

- Lead MATLAB-based laboratory sections of ECE2026 (intro digital signal processing) and host review sessions
- As head TA: coordinate and train other TAs to conduct labs and grade homework

Tutor Sept. 2013 – Dec. 2015
NYU Tandon School of Engineering, TRIO Scholars Program Brooklyn, New York

- One-on-one and small group tutor for introductory-to-advanced level math and physics courses.
- Prepare individualized review plans per student

Publications

M. Vogelsang, **C. N. Martinez**, J. Rendleman, A. Bapodra, K. Malecek, A. Romanchuk, E. Kazlow, R. L. Shapiro, R. S. Berman, M. Krogsgaard, et al., "The expression quantitative trait loci in immune pathways and their effect on cutaneous melanoma prognosis," Clinical Cancer Research, 2016.

R. Ferguson, M. Vogelsang, E. Ucisik-Akkaya, K. Rai, R. Pilarski, **C. N. Martinez**, J. Rendleman, E. Kazlow, K. Nagdimov, I. Osman, et al., "Genetic markers of pigmentation are novel risk loci for uveal melanoma," Scientific reports, vol. 6, p. 31191, 2016.

Conference Poster Sessions

American Society of Clinical Oncology (ASCO) 2017 Annual Meeting

R. Ferguson, D. Simpson, **C. N. Martinez**, M. Vogelsang, E. Kazlow, U. Moran, J. S. Weber, R. J. Sullivan, K. Flaherty, A. C. Pavlick, A. Ribas, I. Osman, and T. Kirchhoff, "Expression quantitative trait loci (eqtls) as germline determinants of melanoma immunotherapy response.," Journal of Clinical Oncology, vol. 35, no. 15 suppl, pp. 3017–3017, 2017.

D. Simpson, R. Ferguson, **C. N. Martinez**, E. Kazlow, U. Moran, A. Heguy, D. Hanniford, E. Hernando, I. Osman, and T. Kirchhoff, "Mutation burden as a potential prognostic marker of melanoma progression and survival.," Journal of Clinical Oncology, vol. 35, no. 15 suppl, pp. 9567–9567, 2017.

E. Kazlow, R. Ferguson, D. Simpson, **C. N. Martinez**, M. Vogelsang, U. Moran, Y. Lee, I. Osman, D. Polsky, and T. Kirchhoff, "Novel germline risk loci in familial melanoma (fm).," Journal of Clinical Oncology, vol. 35, no. 15 suppl, pp. 1535–1535, 2017.

ASCO 2016 Annual Meeting

(Presented) D. Hanniford, **C. N. Martinez**, I. Dolgalev, M. W. Lattanzi, E. V.-S. de Miera, E. M. Robinson, C. Goldman, A. Heguy, T. Kirchhoff, I. Osman, and E. Hernando, "Targeted next-generation sequencing of melanoma patient samples to reveal mutations in non-protein coding regions of targetable oncogenes.," Journal of Clinical Oncology, vol. 34, no. 15 suppl, pp. 9559–9559, 2016.

T. Kirchhoff, E. Ucisik-Akkaya, M. Vogelsang, K. Rai, R. Pilarski, **C. N. Martinez**, R. Ferguson, E. Kazlow, I. Osman, F. H. Davidorf, C. M. Cebulla, and M. Abdel-Rahman, "The identification of novel genetic risk loci in uveal melanoma.," Journal of Clinical Oncology, vol. 34, no. 15 suppl, pp. 1543–1543, 2016.

S. A. Weiss, **C. N. Martinez**, E. V.-S. de Miera, I. Dolgalev, R. L. Shapiro, A. Heguy, E. Hernando, T. Kirchhoff, and I. Osman, "Genomic characterization of acral lentiginous melanoma: Identification of altered metabolism as a potential therapeutic target.," Journal of Clinical Oncology, vol. 34, no. 15 suppl, pp. 9524–9524, 2016.

Technical Skills

Core:

Languages	Analytics	Machine Learning	Data Engineering	Visualization	Web Dev.
Python	SQL Databases	Keras	Hadoop	Dash + plot.ly	Django
R	Pandas	Tensorflow	Spark	matplotlib	Heroku
UNIX Shell	NumPy	scikit-learn	Hive	seaborn	
MATLAB	Tidyverse		AWS EC2 + S3	ggplot	
C++	Excel				

Bioinformatics / Genomics:

Sequence Processing	Genomic Analysis	Annotation and Databases
SAMtools	GATK	ANNOVAR
BWA	Cufflinks	Variant Effect Predictor
Picard Tools	PLINK	The Cancer Genome Atlas
	Bioconductor	Ensembl
		1000 Genomes Project

Academics & Certificates

Gates Millennium Scholar Sept. 2011 – May 2018

Full-ride scholarship awarded by the Bill & Melinda Gates Foundation to minority high school students exhibiting academic promise and commitment to community service.

Deep Learning Specialization March 2018

Deep Learning, a 5-course specialization by deeplearning.ai on Coursera

Selected Projects

City Perimeter Detection - cmartinez.io/perimeter-detection/

Automatically detect the perimeters of cities from aerial images. A convolutional neural network (CNN) detects roads in the image followed by image processing to expand the road network into a contour of the city. Tools used include **Keras with Tensorflow** for implementing a CNN, **AWS** for data acquisition, and **OpenCV** for image processing.

Toeing the Party Manifold – cmartinez.io/toeing-party-manifold/

Interactive 2- and 3D visualization of various dimensionality reduction techniques applied to US congressional voting data. Made with **Dash** and deployed using **Heroku**.