Ethan Alexander García Baker

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SUMMARY

Undergraduate student at the University of Pittsburgh. Pursuing a Bachelor of Philosophy in Neuroscience and a Bachelor of Arts in History and Philosophy of Science with minors in Chemistry and Computer Science. Interests include application of next-generation sequencing to improve medical diagnostics and treatment of cancer and neuropsychiatric disorders, understanding mechanics of next-generation sequencing to improve technology, and issues of ethical use and equitable access to emerging medical technologies. Seeking Ph.D. position in computational biology and genomics.

EDUCATION

Expected 2017 - **Bachelor of Philosophy, Neuroscience,** University of Pittsburgh, Pittsburgh, PA
GPA: 3.88
Thesis: Modeling anticipatory control of autonomic regulatory processes in conscious animal models: a neuroinformatic approach.
Supervisor: Billy J. Yates, Ph.D. (Department of Otolaryngology)

Expected 2017 - **Bachelor of Arts, History and Philosophy of Science**, University of Pittsburgh, Pittsburgh, PA (2017)
GPA: 4.0

PUBLICATIONS

Baker, Ethan Alexander García, Sezen, U., Falk, T., Maloney P., Vogler, D. ,Jensen, C., Mitton, J., Wright, J., Knaus B., Cronn, R., Rai, H., Gonzalez-Ibeas,D., Vasquez-Gross, H., Famula, R., Liu, J., Kueppers, L., Neale D., Wegrzyn, J.L. "Comparative transcriptomics among four white pine species." *G3: Genes, Genomes, and Genetics*. (Under review)

Baker, Ethan Alexander García, Ramos, O.M., Eskipehlivan, S.M., Goodwin, S., Antoniou, E., and McCombie, W.R. "Comparative analysis of PacBio libraries reveals non-stochastic biases in sites of DNA nicking". (Manuscript in preparation)

Baker, Ethan Alexander García and Yates, Billy J**.** "Computational modeling of anticipatory blood flow regulation during postural change." *J. Neurophysiology.* (Manuscript in preparation)

ACHIEVEMENTS AND AWARDS

2016 - Chancellor's Undergraduate Research Fellow (Spring)
2015 - Brackenridge Fellow (Fall)
2015 - William Shakespeare Fellowship, Cold Spring Harbor Laboratory
2013 - Present - Dean's List
2013 - Honors College Full Tuition Scholarship, University of Pittsburgh

RELEVANT EXPERIENCE

January 2014 - Present — B. Phil. Candidate, Yates Lab, Department of Otolaryngology, University of Pittsburgh School of Medicine, Pittsburgh, PA
Developing novel computational strategies to process mass quantities of neural recording data to build a computational model of neural pathways implicated in anticipatory autonomic regulation. Conducting neurophysiological study on the rostral ventrolateral medulla to determine mechanisms of anticipatory regulation of blood flow in response to vestibular stimuli. Examining neuronal inputs to vestibular systems to deduce autonomic control pathways implicated in balance disorders and maintenance of homeostasis.

September 2015-Present — Bioinformatics Analyst, Department of Developmental Biology, Children's Hospital of Pittsburgh of UPMC, Pittsburgh, PA
Process and manage bioinformatic data pipelines, perform variant discovery, functional annotations, and expression analyses. Design figures for inclusion in publications.

June - August 2015 —William Shakespeare Fellow, Cold Spring Harbor Laboratory, Cold Spring Harbor, NY
Recipient of highly competitive fellowship to conduct independent research in computational genomics of cancer and psychiatric disorders under Dr. W. Richard McCombie. Worked to develop bioinformatic and bench approaches to better characterize the mechanics of next-generation sequencing library failure to build better genomic diagnostic tools.

May-December 2014 — Student Research Specialist, Computational Genomics Laboratory, Department of Ecology & Evolutionary Biology, University of Connecticut, CT
Assembled and analyzed transcriptomes of various white pine species. Performed the first comparative transcriptomic analysis in the white pines to identify conserved gene families. Identified genes corresponding to resistance to disease and climate change under positive selection as targets for breeding programs.

September 2012 – March 2013 — Student Researcher, Gogarten Laboratory, Department of Molecular and Cell Biology, University of Connecticut, CT
Studied molecular evolution with a special focus on the role on inteins and homing endonucleases using computational methods.

SKILLS
Bioinformatics: genome and transcriptome assembly, functional annotation, clustering, phylogenetic analysis, sequence alignment, variant discovery, *in-silico* simulations, GATK, quality control
Statistics: R and Minitab
Programming Languages: Python, MATLAB, R, UNIX shell, Perl (basic)
Applications: LaTeX, Jekyll, Git, Jupyter, Octave
Operating Systems: UNIX, Linux, Mac OS X, Windows
Laboratory Techniques: electrophysiology experimental design in large animal models, NGS library preparation
Language: English (native), Spanish (fluent)

ORAL PRESENTATIONS
February 2016 — Poster in Advances in Genome Biology and Technology (AGBT), Orlando, FL
"Comparative analysis of PacBio libraries reveals non-stochastic biases in sites of DNA nicking"

April 2013 —Poster in Connecticut Science and Humanities Symposium, Storrs, CT
“Recognition site conservation of homing endonucleases may explain patchy phylogenetic distributions”

CONTINUING EDUCATION
The Data Scientist’s Toolbox, Johns Hopkins University via Coursera (2015)
Machine Learning, Stanford University via Coursera (In Progress)

COMMUNITY ENGAGEMENT
November 2015 — Guest Speaker, Upper Saint Clair High School, Upper Saint Clair, PA
Taught 9th grade biology course about next-generation sequencing, genomics, and bioinformatics

VOLUNTEER
Student Health Advisory Board, President (2014-Present)
Birmingham Free Clinic, Community Health Fellow (January 2015-Present)
Salud Para Niños, Volunteer (October 2015-Present)
VA Pittsburgh Healthcare, Veteran Experience Volunteer (September 2014-Present)