

Ryan Neff

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Education

ICAHN SCHOOL OF MEDICINE AT MOUNT SINAI

MD/PhD Candidate, Bin Zhang Lab

Working on a bioinformatics project in multi-scale network modeling of Alzheimer's Disease subtypes.

New York, NY
Class of 2023 (est.)

HARVARD UNIVERSITY

SB in Engineering Sciences (High Honors), Biomedical Engineering

Research Assistant (2011-2012) in Genomics and Bioinformatics Research at the Harvard-MIT Health Sciences and Technology of Harvard Medical School. Test Scores: MCAT: 38 (14 P, 12 B, 12 V); ACT: 36

Cambridge, MA
December 2013

Awards

MOUNT SINAI HEALTH HACKATHON, RARE DISEASES

Finalist, Demeter.coach

Awarded \$2500 for our precision diet and healthcare app to aid in the treatment of metabolic disease and food sensitivity.

October 2018

MOUNT SINAI SINAIMEDMAKER CHALLENGE

Finalist, PT Partner

Awarded \$3500 for our physical therapy tracking medical device and mobile app.

October 2016

HARVARD INNOVATION CHALLENGE

Finalist, McKinley Grant for Innovation and Entrepreneurial Leadership

Awarded \$10,000 for winning business plan in competition with more than 80 teams at Harvard and MIT.

March 2011

Previous Work Experience

NATIONAL HUMAN GENOME RESEARCH INSTITUTE

Research Fellow, Dr. Gary Gibbons Lab

- Improved the accuracy of next-generation sequencing by 0.5-5% in population-based studies of cardiovascular disease
- Jointly developed and administrating a \$1.5M clinical research massively parallel computing system, including a novel clinical research database built with NoSQL.
- Re-engineered the common human reference genome and wrote new software in Python for population-based analysis

Bethesda, MD
Jan. 2014 – May 2015

HARVARD BIOROBOTICS LABORATORY

Inventor, Steerable Cardiac Catheter

- Developed a novel type of robotic catheter for more precise targeting in minimally invasive heart surgery, including ablation, biopsies, and valve replacement surgeries in Dr. Robert Howe's lab.

Cambridge, MA
Sept. 2012 – May 2013

HARVARD BIODESIGN LABORATORY

Inventor, Soft Robotic Glove

- Worked with a team of biomedical engineers to design, build, and test a new type of multi-segmented soft actuator for patients with hand disabilities as a result of injury, stroke, and muscular degeneration in Dr. Walsh's lab.

Cambridge, MA
Jan. – May 2013

HARVARD COLLEGE ENGINEERING SOCIETY

Treasurer

- Organized student events around engineering engagement around Harvard and balanced budget for organization
- Fostered innovative projects and trips including those to see industry leaders in healthcare, engineering, and aerospace

Cambridge, MA
Fall 2010-2012

HARVARD ENGINEERS WITHOUT BORDERS

Clean Water Development Group

Cambridge, MA

2010-2011

- Worked in a large team to design, build, and establish innovative renewable water purification systems and a business model to support it aimed at reducing the incidence of disease in communities in the Dominican Republic.

Technical Skills

Programming: Python, MySQL/NoSQL, Matlab, R, Perl, C, Javascript, Ruby, Rails, HTML5, CSS3, AJAX

Design: Solidworks, AutoCAD, Sunstone, Powerpoint, Excel, Word, InDesign, Photoshop, After Effects

Selected Publications, Patents, and Abstracts

Wang M, Beckmann ND, Roussos P, Wang E, Zhou X, Wang Q, Ming C, **Neff RA**, Ma W, Fullard JF, Hauberg ME, Bendl J, Peters MA, Logsdon B, Wang P, Mahajan M, Mangravite LM, Dammer EB, Duong DM, Lah JJ, Seyfried NT, Levey AI, Buxbaum JD, Ehrlich M, Gandy S, Katsel P, Haroutunian V, Schadt E, Zhang B. "The Mount Sinai Cohort of Large-Scale Genomic, Transcriptomic and Proteomic Data in Alzheimer's Disease." *Scientific Data*, vol. 5, The Author(s), Sept. 2018, p. 180185, <http://dx.doi.org/10.1038/sdata.2018.185>.

Neff RA, Bar-Mashiah A, Chandrasekaran S, Chiang D, Thomas, D, Meah Y. "Design and Evaluation of an Affordable, Patient-Centered Telephony System for a Student-Run Free Clinic". SSRFC Conference 2018, University of Nebraska, Omaha, NE

Zilbermint M, Xekouki P, Faucz FR, Berthon A, Gkourogiani A, Scherthaner-Reiter MH, Batsis M, Sinaii N, Quezado MM, Merino M, Hodes A, Abraham SB, Libé R, Assié G, Espiard S, Drougat L, Ragazzon B, Davis A, Gebreab SY, Neff R, Kebebew E, Bertherat J, Lodish MB, Stratakis CA. Primary Aldosteronism and ARMC5 Variants. *J Clin Endocrinol Metab*. 2015 Jun;100(6):E900-9. doi: 10.1210/jc.2014-4167.

Alignment to an Ancestry Specific Reference Genome Discovers Additional Variants Among 1000 Genomes ASW Cohort. **Neff RA**, Vargas J, Gibbons GH, Davis AR. Cardiovascular Disease Section, GMCID, National Human Genome Research Institute, Bethesda, MD. Platform Presentation, American Society for Human Genetics Conference. 2014 October 19.

US 10,184,500, WO 2015066143 A1. Galloway K, Walsh C, Holland D, Polygerinos P, Clites T, Neff RA, et al inventors. "Multi-segment reinforced actuators and applications." Harvard University, assignee. 2013 October 29.

US Patent Nos. 9,870,003, 8,930,059, 8,532,862. Neff, Ryan A. "Driverless vehicle."

US Patent No. 8,311,730. Neff, Ryan A. "Vehicle Position Determination System"

Maeder-York, P, Clites T, Boggs E, **Neff R**, Polygerinos P, Holland D, Stirling L, Galloway K, Wee C, Walsh C. Biologically Inspired Soft Robot for Thumb Rehabilitation. *J. Med. Devices*. 2014 April 28.

Kurek KC et al. Somatic Mosaic Activating Mutations in PIK3CA Cause CLOVES Syndrome. *Am Jol Hum Gen* 2012 Jun 8 90;6;1108-1115

Bellapianta J, Swartz F, Lisella J, Czajka J, Neff R, Uhl R. Randomized prospective evaluation of injection techniques for the treatment of lateral epicondylitis. *Orthopedics*. 2011 Nov 9;34(11)

US Patent No. 6,850,170. Neff, Ryan A. "On-board Vehicle System and Method for Receiving and Indicating Driving-Related Signals"