

# Vivek Gopalakrishnan

## Curriculum Vitae

Johns Hopkins University  
Baltimore, MD  
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### Education

- 2019–present **MSE, Biomedical Engineering**, *Johns Hopkins University*, Baltimore, MD.  
GPA: N/A, Focus Area: Biomedical Data Science
- 2017–present **BS, Biomedical Engineering**, *Johns Hopkins University*, Baltimore, MD.  
GPA: 3.73, Dean's List (2017-2019)

### Experience

- 2018–present **Research Assistant**, *Johns Hopkins University*, Neurodata Lab.  
  - Developed novel methodology for high-dimensional regression with Random Forest
  - Discovered neuro-connectively similar subtypes of autism using joint embeddings of multi-network connectomes
- 2018–2019 **Research Assistant**, *Ragon Institute of MGH, MIT and Harvard*, Ghebremichael Lab.  
  - Investigated the performance of different ROC models in binary and multi-class settings
  - Identified biomarkers for antiretroviral toxicity by applying statistical learning methods to HIV-patient data
- 2017–2018 **Design Team Member**, *Johns Hopkins University*, Dept. of Biomedical Engineering.  
  - Developed machine learning algorithm to predict the onset of lung failure in pediatric patients
- 2017 **Summer Research Intern**, *Fondazione Bruno Kessler*, Trento, Italy.  
  - Created autonomous data collection vehicles by mounting spectral cameras on drones
  - Implemented deep learning algorithms to quantitatively assess environmentally-related crop damage from image data
- 2016-2017 **Independent Researcher**, *Tufts University*, Walt Lab.  
  - Used next-generation sequencing to study the effect of flossing on the human oral microbiome
  - Analyzed high-dimensional genomic data using unsupervised clustering and Markov chain-based forecasting models

### Publications and Presentations

- 2019 **Vivek Gopalakrishnan**, Joshua T. Vogelstein, *Towards Discovering Heterogeneity in Autism via Multi-Network Connectomics*, **Conference: BMES 2019**
- 2019 Nian Wang, Robert J. Anderson, David G Ashbrook, **Vivek Gopalakrishnan**, Youngser Park, Carey E. Priebe, Yi Qi, Joshua T. Vogelstein, Robert W. Williams, G. Allan Johnson, *Node-Specific Heritability in the Mouse Connectome*, Submitted to **Neuron**, <https://doi.org/10.1101/701755>

- 2019 **Vivek Gopalakrishnan**, Musie Ghebremichael, *Comparison of the Accuracy of Different Receiver Operating Characteristic Models*, **preprint**
- 2018 Musie Ghebremichael, Jong Soo Lee, **Vivek Gopalakrishnan**, Elijah Paintsil, *A comparison of machine learning techniques for classification of HIV patients with antiretroviral therapy-induced mitochondrial toxicity from those without mitochondrial toxicity*, **Journal: BMC Public Health**

## Grants and Awards

- 2019 **Pistrutto Fellowship Recipient**, *Johns Hopkins University*, Dept. of Computer Science.
- 2018 **Recipient**, *Amazon Web Services Cloud Credits for Research Grant*.
- 2017 **Second Place Winner**, *Intel International Science and Engineering Fair*, Microbiology.
- 2017 **Semi-Finalist**, *Regeneron Science Talent Search*.

## Skills

Computing Python, R, C++  
 Other Unix, git, L<sup>A</sup>T<sub>E</sub>X

## Leadership

- 2018–present **Head PILOT Leader**, *Johns Hopkins University*.  
 Lecturer/Tutor for Linear Algebra and Multivariable Calculus
- 2017–present **Music Director**, *Johns Hopkins University*, AllNighters.  
 Compose original arrangements and lead rehearsals as part of the AllNighters, JHU's premeir all-male A Cappella group