AYUSH NOORI

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PROFILE

Inspired by personal experiences with neurological disease, I research at the junction of neuroscience and artificial intelligence – including computer vision, natural language processing, and graph representation learning – to decipher the brain. My mission is to design computational tools that enable novel insights into the brain to ameliorate human neurological health across the lifespan.

SKILLS

R | Python | Java | Git
PyTorch | Shiny | Django
ImageJ | ggplot2 | HTML
CSS | Hindi | Spanish

EDUCATION

Harvard University   **Cambridge, MA**
A.B. Candidate in Computer Science and Neuroscience   September 2021 – May 2025
- Peter Wilson Award for service and leadership, in recognition of significant contribution to Harvard life and accessibility.
- Finalist, Veritas Award for intellectual curiosity. Top 3 students selected from 1,968 members of Class of 2025.
- Co-Founder and Director of Finance, Harvard OpenBio Lab (www.harvardopenbio.org), first student biomakerspace at Harvard.
- Chair of Campus Projects, Undergraduate Research Association; organize largest student-run collegiate research conference in U.S.

Phillips Exeter Academy   **Exeter, NH**
Cum Laude Society Inductee   September 2016 – June 2020
Recipient of Cox Medal for highest scholastic rank, Perry Cup for "exceptional leadership," Cornell Award for integrity and spirit, and Gavit Cup for "outstanding character." Elected president of Student Council, Editor-In-Chief of AAPI literary and arts magazine.

RESEARCH EXPERIENCE

George Church Laboratory   **Boston, MA**
Wyss Institute for Biologically Inspired Engineering, Harvard University   September 2022 – Present
- Developed neuronal network inference methods on calcium imaging data to profile patient-derived cerebral organoids.
- ML-guided protein engineering of CRISPR-Cas nucleases for therapeutic applications in neurological disease and cancer.

Marinka Zitnik Laboratory   **Boston, MA**
Department of Biomedical Informatics, Harvard Medical School   February 2021 – Present
- Integrated > 9M cells from CNS scRNA-seq studies into large-scale biomedical knowledge graph with 2.8M associations.
- Pre-trained graph attention networks and BERT-family LLMs for multimodal drug repurposing prediction in neurological disease.
- Released open-source R software library for meta-path-based similarity search in heterogeneous biomedical knowledge graphs.
- Surveyed 145 graph AI studies across image, language, knowledge domains to create framework for graph multimodal learning.

MIND Data Science Laboratory   **Cambridge, MA**
MassGeneral Institute for Neurodegenerative Disease (MIND)   August 2018 – Present
- Spearheaded team of 14 clinicians and 8 scientists to apply natural language processing (NLP) on the electronic health record (EHR) for automated detection of cognitive impairment, including in patients with Alzheimer's disease, HIV, and COVID-19.
- Investigated shared pathophysiology across neurodegeneration via meta-analysis of 2,600 CNS transcriptomics samples.
- Advised by Dr. Sudeshna Das and Dr. Bradley T. Hyman, Director of the Massachusetts Alzheimer Disease Research Center.

Alberto Serrano-Pozo Laboratory   **Charlestown, MA**
Department of Neurology, Massachusetts General Hospital   June 2019 – January 2023
- Designed computer vision models and -omics analysis pipelines to decipher the heterogeneity of reactive gliosis in Alzheimer's.
- Segmented and classified 11K astrocytes and microglia at single-cell resolution from multiplexed human brain IHC images.
- Performed bioinformatics analyses on markers of AD astrocyte reaction (*e.g.*, protein-protein interaction, TF enrichment).

Clotilde Lagier-Tourenne Laboratory   **Charlestown, MA**
Department of Neurology, Massachusetts General Hospital   March 2018 – June 2019
- Researched *C9orf72* expansion in ALS-FTD, trained in human embryonic kidney and neuronal cell culture, sterile technique.
- Semi-automated image segmentation to quantify dipeptide repeat protein (DPR) aggregates in the mouse hippocampus.

Matt Kaeberlein Laboratory   **Seattle, WA**
Department of Pathology, University of Washington   March 2017 – August 2017
- Profiled extracellular vesicles containing β-amyloid, tau, and α-synuclein in *C. elegans* models of neurodegeneration.

CLINICAL EXPERIENCE

Neuromuscular Division   **Boston, MA**
Department of Neurology, Massachusetts General Hospital   October 2020 – Present
- Geometric deep learning on genomic sequencing and EHR data for causal gene discovery in patients with peripheral neuropathy.
- During summer 2023, shadowed Dr. Reza Seyedsadjadi, MD in the MGH Neuromuscular Clinic and Diagnostic Center.

Harvard College Alzheimer's Buddies Program   **Boston, MA**
Phillips Brooks House Association   September 2022 – Present
- Volunteered with Memory Support at Allen House, assisted care facility for dementia patients within Springhouse senior living.
- Provided friendship, social engagement, and comfort to elderly patients with Alzheimer's disease and related dementias.

Memory Disorders Division   **Boston, MA**
Department of Neurology, Massachusetts General Hospital   July 2019 – August 2019
- During summer 2019, shadowed Dr. Alberto Serrano-Pozo, MD PhD in the MGH Memory Disorders Unit (MDU).

BIOTECHNOLOGY EXPERIENCE

Fifty Years   **San Francisco, CA**
Biology Fellow   November 2021 – January 2023
- Fellow at early-stage venture capital firm helping scientists translate breakthroughs in biology to therapeutics and biotechnologies.
- Supported founders of LadderTx, LatchBio, HelixNano, Manifold, Avail, and other impact-centric biotech startups.
- Host of Translation Podcast with over 13,000 all-time downloads, available on Spotify, Apple Podcasts, etc.

gener8tor   **Milwaukee, WI**
Technology Transfer Associate   September 2020 – August 2021
- Sourced licensing opportunities from university technology transfer offices. Selected for gener8tor Accelerator Studio 2020.

TEACHING AND ADVISING

Pre-Health Peer Liaison (PPL)   **Cambridge, MA**
Mignone Center for Career Success, Harvard College   June 2023 – Present
Selected as pre-medical peer advisor, working with Health Careers Advising to support pre-health students at Harvard College.

Peer Advising Fellow (PAF)   **Cambridge, MA**
Advising Programs Office, Harvard College   July 2022 – Present
Advisor for 39 freshmen in Grays Hall and academic advisor for nine students. Trained to offer academic, social, personal support.

Course Assistant   **Cambridge, MA**
GenEd 1125: Artificial and Natural Intelligence, Harvard College   February 2023 – May 2023
Selected as CA in GenEd 1125, Spring 2023 taught by Dr. Venkatesh Murthy at Harvard College. Supporting 194 enrolled students.

COMMUNITY SERVICE

Director of Partnerships   **Boston, MA**
Nucleate Dojo   March 2022 – Present
Empowering the next generation of youth biotech innovators through community, resources, and capital. Helped raise $35K to fund DojoHouse, the first ever biotech co-living community. Nucleate is a 501(c)(3) non-profit, see www.nucleate.xyz/dojo.

Co-Founder   **Seattle, WA**
Nurturing Neurons Junior Guild   January 2021 – Present
Co-founder of 501(c)(3) non-profit organization to support the Neuromuscular Program at Seattle Children's Hospital and raise community awareness about pediatric neuromuscular disorders.

Advisory Board Member   **Newcastle, WA**
Coal Creek Family YMCA   December 2018 – Present
Promoting education and engagement among Newcastle area youth. Served on Teen Action and Community Outreach committees.

Regional Director   **Boston, MA**
EduSTEM Initiative   September 2018 – July 2020
Helped establish global network of over 6,700 youth across 14 countries to provide STEM education to underserved students.

SELECTED NATIONAL AWARDS

Patient Safety Technology Challenge Winner
Developed AI-enabled physician assistant for automated clinical question generation, awarded top prize in patient safety at Stanford TreeHacks 2023, largest hackathon in Silicon Valley.

New York Times Gold Medal Portfolio
Writing portfolio named from 320,000+ submissions as one of 16 National Gold Medal Portfolios in the 2020 Scholastic Art & Writing Awards, the program's highest national honor.

Davidson Fellows Scholarship
Honorable mention in 2021 Davidson Fellows Scholarship for "gifted and high-achieving students."

Regeneron Science Talent Search Scholar
Top 300 Scholar in 2020 Regeneron Science Talent Search, the "most prestigious STEM competition for high school seniors."

YoungArts Winner in Writing
Winner in 2021 YoungArts National Arts Competition.

Intel International Science and Engineering Fair Finalist
Finalist in 2019 Intel International Science and Engineering Fair, the world's largest pre-collegiate science competition.

Coca-Cola Scholar
Selected as one of 150 Coca-Cola Scholars, Class of 2020 from nationwide pool of 93,000+ applicants.

Scripps National Spelling Bee
Finalist in 2016 Scripps National Spelling Bee.

FELLOWSHIPS AND GRANTS

Interact Fellowship — **San Francisco, CA**
Interact — July 2023
Selected as a member of the eleventh cohort of Interact, a "fellowship for young technologists dedicated to social impact." Plan to attend Fellowship Retreat in Northern California.

Summer Institute in Biomedical Informatics — **Boston, MA**
Department of Biomedical Informatics, Harvard Medical School — June 2023 – August 2023
Named as research fellow of selective 2023 SIBMI program for "undergraduates with quantitative skills in translational biomedicine with a future PhD or research-oriented MD or MD/PhD."

Herchel Smith Undergraduate Science Research Fellowship — **Cambridge, MA**
Office of Undergraduate Research and Fellowships, Harvard College — June 2023 – August 2023
Named 2023 Herchel Smith Fellow, "for talent and promise as a contributor to the next generation of scientific research."

Harvard College Research Program — **Cambridge, MA**
Office of Undergraduate Research and Fellowships, Harvard College — September 2022 – May 2023
Supported work in Church Lab at Wyss Institute on patient-derived cerebral organoid models of neuropsychiatric disease.

Raymond Fong '77 and Winnie Moy Internship Program — **Cambridge, MA**
Center for Public Service and Engaged Scholarship, Harvard College — December 2022 – January 2023
To provide "transformative experience in the public interest sector," supported work in Zitnik Lab at Harvard Medical School.

Research and Education Component (REC) Junior Affiliate — **Boston, MA**
Massachusetts Alzheimer's Disease Research Center, Massachusetts General Hospital — July 2021 – June 2022
Trained in cross-disciplinary research on Alzheimer's disease early detection, evaluation, care, mechanism, prevention, and treatment.

SPARK Fellowship — **Cambridge, MA**
Center for Public Service and Engaged Scholarship, Harvard College — July 2021 – August 2021
Supported work at Harvard Medical School to develop an AI-assisted decision support system using network science and machine learning methods that can inform diagnoses of mysterious medical conditions in the Undiagnosed Diseases Network (UDN).

Bioinformatics Inquiry Through Sequencing (BioSeq) — **Medford, MA**
Department of Chemistry, Tufts University — November 2017 – March 2018
Awarded next-generation sequencing grant to profile the exRNA transcriptome of *C. elegans* Alzheimer's models, in collaboration with the BioSeq Group and Genomics Core at Tufts University and the Kaeberlein Lab at the University of Washington.

SELECTED PUBLICATIONS

Sudeshna Das, Zhaozhi Li, Astrid Wachter, Srinija Alla, **Ayush Noori,** Aicha Abdourahman, Joseph A. Tamm, Maya Woodbury, Robert V. Talanian, Knut Biber, Eric H. Karran, Bradley T. Hyman, Alberto Serrano-Pozo. Distinct transcriptomic responses to Aβ plaques, neurofibrillary tangles, and *APOE* in Alzheimer's disease. *Accepted in Alzheimers & Dementia.* doi: 10.1101/2023.03.20.533303

Douglas R. Wilcox,* Emily A. Rudmann,* Elissa Ye,* **Ayush Noori,** Colin G. Magdamo, Aayushee Jain, Haitham Alabsi, Virginia A. Triant, Gregory K. Robbins, M. Brandon Westover, Sudeshna Das, Shibani S. Mukerji. Cognitive concerns are a risk factor for mortality in people with human immunodeficiency virus and COVID-19. *AIDS.* 2023 May 10. doi: 10.1097/QAD.0000000000003595

Ayush Noori, Michelle M. Li,* Amelia L. M. Tan,* Marinka Zitnik. `metapaths`: similarity search in heterogeneous knowledge graphs via meta paths. *Bioinformatics.* 2023 May 4; 39(5): btad297. doi: 10.1093/bioinformatics/btad297

Yasha Ektefaie,* George Dasoulas,* **Ayush Noori,** Maha Farhat, Marinka Zitnik. Multimodal learning with graphs. *Nature Machine Intelligence.* 2023 Apr 3; 1-11. doi: 10.1038/s42256-023-00624-6

Clara Muñoz-Castro, **Ayush Noori,** Bradley T. Hyman. Alberto Serrano-Pozo. Cyclic multiplex fluorescent immunohistochemistry protocol to phenotype glial cells in formalin-fixed paraffin-embedded human brain sections. In: *Signal Transduction Immunohistochemistry*. Humana, New York, NY; 2023: 283-305. doi: 10.1007/978-1-0716-2811-9_19

Alberto Serrano-Pozo, Zhaozhi Li, Maya E. Woodbury, Clara Muñoz-Castro, Astrid Wachter, Rojashree Jayakumar, Annie G. Bryant, **Ayush Noori,** Lindsay A. Welikovitch, Miwei Hu, Fan Liao, Gen Lin, Timothy Pastika, Joseph Tamm, Aicha Abdourahman, Taekyung Kwon, Rachel E. Bennett, Robert V. Talanian, Knut Biber, Eric H. Karran, Bradley T. Hyman, Sudeshna Das. Astrocyte transcriptomic changes along the spatiotemporal progression of Alzheimer's disease. bioRxiv: 2022.12.03.518999. Published online 2022. doi: 10.1101/2022.12.03.518999

Ayush Noori,* Colin G. Magdamo,* Xiao Liu, Tanish Tyagi, Zhaozhi Li, Akhil Kondepudi, Haitham Alabsi, Emily A. Rudmann, Douglas R. Wilcox, Laura N. Brenner, Gregory K. Robbins, Lidia M. V. R. Moura, Sahar F. Zafar, Nicole M. Benson, John Hsu, John R. Dickson, Alberto Serrano-Pozo, Bradley T. Hyman, Deborah Blacker, M. Brandon Westover, Shibani S. Mukerji,* Sudeshna Das.* Development and evaluation of a natural language processing annotation tool (NAT) to facilitate phenotyping of cognitive status in electronic health records. *J Med Internet Res.* 2022 Aug 30; 24(8): e40384. doi: 10.2196/40384

Pia Kivisäkk,* Colin G. Magdamo,* Bianca A. Trombetta, **Ayush Noori,** Yi-kai E. Kuo, Lori B. Chibnik, Becky C. Carlyle, Alberto Serrano-Pozo, Clemens R. Scherzer, Bradley T. Hyman, Sudeshna Das, Steven E. Arnold. Plasma biomarkers for prognosis of cognitive decline in patients with mild cognitive impairment. *Brain Commun.* 2022 Jun 14; 4(4): fcac155. doi: 10.1093/braincomms/fcac155

Clara Muñoz-Castro,* **Ayush Noori,*** Colin G. Magdamo, Jordan D. Marks, Matthew P. Frosch, Sudeshna Das, Bradley T. Hyman, Alberto Serrano-Pozo. Cyclic multiplex fluorescent immunohistochemistry and machine learning reveal distinct states of astrocytes and microglia in normal aging and Alzheimer's disease. *J Neuroinflammation.* 2022 Feb 2; 19(1): 30. doi: 10.1186/s12974-022-02383-4

Lucía Viejo de Navas,* **Ayush Noori,*** Emily Merrill, Sudeshna Das, Bradley T. Hyman, Alberto Serrano-Pozo. Systematic review of human postmortem immunohistochemical studies and bioinformatics analyses unveil the complexity of astrocyte reaction in Alzheimer's disease. *Neuropathol Appl Neurobiol.* 2022 Feb; 48(1): e12753. doi: 10.1111/nan.12753

Alberto Serrano-Pozo, Zhaozhi Li, **Ayush Noori,** Huong N. Nguyen, Aziz Mezlini, Liang Li, Eloise Hudry, Rosemary J. Jackson, Bradley T. Hyman, Sudeshna Das. Effect of *APOE* alleles on the glial transcriptome in normal aging and Alzheimer's disease. *Nature Aging.* 2021 Oct; 1: 919-931. doi: 10.1038/s43587-021-00123-6

Ayush Noori, Aziz M. Mezlini, Bradley T. Hyman, Alberto Serrano-Pozo, Sudeshna Das. Systematic review and meta-analysis of human transcriptomics reveals neuroinflammation, deficient energy metabolism, and proteostasis failure across neurodegeneration. *Neurobiol Dis.* 2021 Feb; 149: 105225. doi: 10.1016/j.nbd.2020.105225

Ayush Noori, Aziz M. Mezlini, Bradley T. Hyman, Alberto Serrano-Pozo, Sudeshna Das. Differential gene expression data from the human central nervous system across Alzheimer's disease, Lewy body diseases, and the amyotrophic lateral sclerosis and frontotemporal dementia spectrum. *Data in Brief.* 2021 Feb; 35: 106863. doi: 10.1016/j.dib.2021.106863

Sudeshna Das,* Zhaozhi Li,* **Ayush Noori,** Bradley T. Hyman, Alberto Serrano-Pozo. Meta-analysis of mouse transcriptomic studies supports a context-dependent astrocyte reaction in acute CNS injury versus neurodegeneration. *J Neuroinflammation.* 2020 Jul 31; 17(1): 227. doi: 10.1186/s12974-020-01898-y

Joshua C. Russell, Taek-Kyun Kim, **Ayush Noori,** Gennifer E. Merrihew, Julia E. Robbins, Alexandra Golubeva, Kai Wang, Michael J. MacCoss, Matt Kaeberlein. Composition of *C. elegans* extracellular vesicles suggest roles in metabolism, immunity, and aging. *Geroscience.* 2020 Jun 24; 42(4): 1133-1145. doi: 10.1007/s11357-020-00204-1

Lutz Kockel, Catherine Griffin, Yaseen Ahmed, et al. An interscholastic network to generate LexA enhancer trap lines in *Drosophila*. *G3 (Bethesda).* 2019 Jul 9; 9(7): 2097-2106. doi: 10.1534/g3.119.400105

* indicates equal contribution.

CONFERENCE PRESENTATIONS

American Academy of Neurology (AAN) Annual Meeting 2023
Emily A. Rudmann,* Douglas R. Wilcox,* Elissa Ye,* **Ayush Noori,** Colin Magdamo, Aayushee Jain, Haitham Alabsi, Virginia A. Triant, Gregory K. Robbins, M. Brandon Westover, Sudeshna Das, Shibani S. Mukerji. Cognitive concerns are a risk factor for mortality in people with human immunodeficiency virus and COVID-19. *Neurology.* 100(17 S2): 2872. doi: 10.1212/WNL.0000000000202860

Alzheimer's Association International Conference (AAIC) 2022
Zhaozhi Li, Astrid Wachter, Srinija Alla, **Ayush Noori,** Aicha Abdourahman, Joseph A. Tamm, Maya E. Woodbury, Robert V. Talanian, Knut Biber, Eric H. Karran, Sudeshna Das, Bradley T. Hyman, Alberto Serrano-Pozo. The *APOEε4* allele exacerbates the transcriptomic responses to Aβ plaques and neurofibrillary tangles in Alzheimer's disease. *Alzheimer's & Dementia.* 2023 Jun 16; 19(S1): e062783. doi: 10.1002/alz.062783

Alberto Serrano-Pozo, Zhaozhi Li, Maya E. Woodbury, Astrid Wachter, Annie G. Bryant, **Ayush Noori,** Lindsay A. Welikovitch, Rosemary J. Jackson, Gen Lin, Taekyung Kwon, Rachel E. Bennett, Robert V. Talanian, Knut Biber, Eric H. Karran, Bradley T. Hyman, Sudeshna Das. A brain atlas of astrocyte transcriptomics unveils complex states and responses to Alzheimer's disease neuropathology. *Alzheimer's & Dementia.* 2022 Dec 20; 18(S4): e060866. doi: 10.1002/alz.060866

Colin G. Magdamo,* **Ayush Noori,*** Xiao Liu, Tanish Tyagi, Zhaozhi Li, Akhil Kondepudi, Haitham Alabsi, Emily A. Rudmann, Douglas R. Wilcox, Laura N. Brenner, Gregory K. Robbins, Lidia M. V. R. Moura, John Hsu, Sahar F. Zafar, Nicole M. Benson, Alberto Serrano-Pozo, John R. Dickson, Bradley T. Hyman, Deborah Blacker, M. Brandon Westover, Shibani S. Mukerji,* Sudeshna Das.* Development and evaluation of a natural language processing annotation tool (NAT) to facilitate phenotyping of cognitive status in electronic health records. *Alzheimer's & Dementia.* 2022 Dec 20; 18(S11): e068929. doi: 10.1002/alz.068929

IDWeek 2022
Shibani S. Mukerji, Douglas R. Wilcox, Emily A. Rudmann, Elissa Ye, **Ayush Noori,** Colin G. Magdamo, Haitham Alabsi, Virginia A. Triant, Gregory Robbins, M. Brandon Westover, Sudeshna Das. 2358. Dementia and cognitive concerns are risk factors for mortality in people with human immunodeficiency virus and COVID-19. *Open Forum Infectious Diseases*. 2022 Dec 15; 9(S2): ofac492.165. doi: 10.1093/ofid/ofac492.165

Society for Neuroscience (SFN) Annual Meeting 2021
Clara Muñoz-Castro,* **Ayush Noori,*** Colin G. Magdamo, Jordan D. Marks, Matthew P. Frosch, Sudeshna Das, Bradley T. Hyman, Alberto Serrano-Pozo. P246.02 - Cyclic multiplex fluorescent immunohistochemistry and machine learning reveal distinct states of astrocytes and microglia in normal aging and Alzheimer's disease. 2021 Nov 11.

Machine Learning for Health (ML4H) at Neural Information Processing Systems (NeurIPS) 2021
Tanish Tyagi,* Colin G. Magdamo,* **Ayush Noori,** Zhaozhi Li, Xiao Liu, Mayuresh Deodhar, Zhuoqiao Hong, Wendong Ge, Elissa M. Ye, Yi-han Sheu, Haitham Alabsi, Laura Brenner, Gregory K. Robbins, Sahar F. Zafar, Nicole Benson, Lidia Moura, John Hsu, Alberto Serrano-Pozo, Dimitry Prokopenko, Rudolph E. Tanzi, Bradley T. Hyman, Deborah Blacker, Shibani S. Mukerji, M. Brandon Westover, Sudeshna Das. Using deep learning to identify patients with cognitive impairment in electronic health records. arXiv: 2111.09115 [cs.CL]. doi: 10.48550/arXiv.2111.09115

Alzheimer's Association International Conference (AAIC) 2021
Clara Muñoz-Castro,* **Ayush Noori,*** Colin G. Magdamo, Jordan D. Marks, Sudeshna Das, Bradley T. Hyman, Alberto Serrano-Pozo. Characterization of glial responses in Alzheimer's disease with cyclic multiplex fluorescent immunohistochemistry and machine learning. 2021 Jul 26. *Alzheimer's & Dementia*. 2021; 17(S3): e050902. doi: [10.1002/alz.050902](10.1002/alz.050902)

Colin G. Magdamo, Zhuoqiao Hong, **Ayush Noori,** Yi-han Sheu, Mayuresh Deodhar, Elissa M. Ye, Wendong Ge, Haoqi Sun, Laura Brenner, Gregory K. Robbins, Shibani Mukerji, Sahar F. Zafar, Nicole Benson, Lidia M. V. Moura, John Hsu, Steven E. Arnold, Bradley T. Hyman, Alberto Serrano-Pozo, M. Brandon Westover, Deborah Blacker, Sudeshna Das. Active deep learning to detect cognitive concerns in electronic health records. *Alzheimer's & Dementia*. 2021; 17(S11): e055362. doi: [10.1002/alz.055362](10.1002/alz.055362)

15th International Conference on Alzheimer's and Parkinson's Diseases (AD/PD 2021)
Ayush Noori,* Lucía Viejo de Navas,* Bradley T. Hyman, Sudeshna Das, Alberto Serrano-Pozo. A systematic review of human postmortem immunohistochemical studies unveils the complexity of astrocyte reaction in Alzheimer's disease. 2021 Mar 9.

Machine Learning for Health (ML4H) at Neural Information Processing Systems (NeurIPS) 2020
Zhuoqiao Hong,* Colin G. Magdamo,* Yi-han Sheu,* Prathamesh Mohite, **Ayush Noori,** Elissa M. Ye, Wendong Ge, Haoqi Sun, Laura Brenner, Gregory Robbins, Shibani Mukerji, Sahar F. Zafar, Nicole Benson, Lidia Moura, John Hsu, Bradley T. Hyman, M. Brandon Westover, Deborah Blacker, Sudeshna Das. Natural language processing to detect cognitive concerns in electronic health records using deep learning. arXiv: 2011.06489 [cs.CL]. doi: 10.48550/arXiv.2011.06489

AAIC Neuroscience Next 2020
Ayush Noori, Aziz M. Mezlini, Bradley T. Hyman, Alberto Serrano-Pozo, Sudeshna Das. Meta-analysis of human transcriptomics reveals neuroinflammation, altered energy metabolism, and deficient proteostasis across ALS-FTD, Alzheimer's, and Lewy body diseases. *Alzheimer's & Dementia*. 2020 Dec 01; 16(S12): e12278. doi: [10.1002/alz.12278](10.1002/alz.12278)

Alzheimer's Association International Conference (AAIC) 2020
Sudeshna Das,* Zhaozhi Li,* **Ayush Noori,** Bradley T. Hyman, Alberto Serrano-Pozo. Meta-analysis of mouse transcriptomic studies supports a context-dependent astrocyte reaction in acute CNS injury versus neurodegeneration. *Alzheimer's & Dementia*. 2020 Dec 07; 16(S2): e040699. doi: [10.1002/alz.040699](10.1002/alz.040699)

TALKS AND SYMPOSIA

SynBioBeta 2023
Ayush Noori, Tony Kulesa, Dorothy Zhang, Sara Kemppainen. How Strong Communities Can Empower VCs and Startups. Moderated panel at SynBioBeta Global Synthetic Biology Conference. 2023 May 25.

MGH Scientific Advisory Committee (SAC) Meeting Celebration of Science 2023
Clara Muñoz-Castro, Molly Healey, Jordan D. Marks, Srinija Alla, Zane D. Kashlan, **Ayush Noori,** Zhanyun Fan, Maria Calvo-Rodriguez, Eloise Hudry, Bradley T. Hyman, Alberto Serrano-Pozo. Cytoskeletal GFAP upregulation by reactive astrocytes does not alter neuronal tau pathology in a mouse model of Alzheimer's disease. 2023 Mar 29.

MGH Clinical Research Day 2022
Tanish Tyagi,* Colin G. Magdamo,* You Cheng, Matthew West, **Ayush Noori,** Xiao Liu, Alberto Serrano-Pozo, Bradley T. Hyman, Shibani S. Mukerji, M, Brandon Westover, Deborah Blacker, Sudeshna Das. Deep learning natural language processing to detect cognitive impairment in charts from electronic health records. 2022 Oct 13. <u>Recipient of Team Science Honorable Mention.</u>

Emily A. Rudmann,* Douglas R. Wilcox, * Elissa Ye,* **Ayush Noori,** Colin G. Magdamo, Haitham Alabsi, Virginia A. Triant, Gregory K. Robbins, Kathleen A. McGinnis, M. Brandon Westover, Sudeshna Das, Shibani S. Mukerji. Cognitive concerns and dementia are risk factors for mortality from COVID-19 in people with and without human immunodeficiency virus. 2022 Oct 13.

Flagship Pioneering Seminar
Ayush Noori. Bioinformatics and machine learning to decipher glial reactions in neurodegeneration. 2022 May 19.

MGH Scientific Advisory Committee (SAC) Meeting Celebration of Science 2022
Mark Deehan, Josine Kothius, Elizabeth Weisman, Sophia Liu, Ellen Sapp, Maria Iuliano, Connor Seeley, Zhaozhi Li, **Ayush Noori,** Mike Brodsky, Sudeshna Das, Marian DiFiglia, Kimberly B. Kegel-Gleason. Characterization of differentiated human cortical neurons as a model to understand a missense mutation in the gene Nucleus Accumbens 1 that causes a profound developmental delay in humans. 2022 Apr 7.

MGH Clinical Research Day 2021
Colin G. Magdamo,* **Ayush Noori,*** Zhuoqiao Hong, Mayuresh Deodhar, Yi-Han Sheu, Elissa Ye, Wendong Ge, Haoqi Sun, Laura Brenner, Gregory Robbins, Sahar Zafar, Nicole Benson, Lidia Moura, John Hsu, Alberto Serrano-Pozo, Bradley T. Hyman, Shibani S. Mukerji, M. Brandon Westover, Deborah Blacker, Sudeshna Das. Active deep learning to detect cognitive concerns in electronic health records. 2021 Oct 14. Recipient of MGH Neurology Department Award.

MGH Scientific Advisory Committee (SAC) Meeting Celebration of Science 2021
Ayush Noori,* Lucía Viejo de Navas,* Bradley T. Hyman, Sudeshna Das, Alberto Serrano-Pozo. Systematic review of human postmortem immunohistochemical studies unveils the complexity of astrocyte reaction in Alzheimer's disease. 2021 Apr 7.

Martinos Center Summer Symposium 2021
Tanish Tyagi, Colin G. Magdamo, **Ayush Noori,** Mayuresh Deodhar, Zhuoqiao Hong, Dmitry Prokopenko, Rudolph E. Tanzi, Deborah Blacker, Bradley T. Hyman, Shibani S. Mukerji, M. Brandon Westover, Sudeshna Das. Using deep learning to identify cognitive impairment in electronic health records. 2021 Aug 13.

Ollaya Krikib, Sara Dasgupta, **Ayush Noori,** Colin G. Magdamo, Sudeshna Das. Understanding health disparities using visualization of complex, multidimensional data. 2021 Aug 13.

Massachusetts Alzheimer's Disease Research Center Growdon Symposium
Ayush Noori, Bradley T. Hyman, Alberto Serrano-Pozo, Sudeshna Das. Meta-analysis of human brain transcriptomics reveals pan-neurodegenerative and disease-specific expression signatures across ALS-FTD, Alzheimer's, and Lewy body diseases. 2019 Nov 25.

MGH Clinical Research Day 2019
Ayush Noori, Bradley T. Hyman, Alberto Serrano-Pozo, Sudeshna Das. Meta-analysis of human brain transcriptomics reveals pan-neurodegenerative and disease-specific expression signatures across ALS-FTD, Alzheimer's, and Lewy body diseases. 2019 Oct 3.

MGH Neuroscience Day 2019
Ayush Noori,* Clara Muñoz-Castro,* Aziz M. Mezlini, Sudeshna Das, Bradley T. Hyman, Alberto Serrano-Pozo. Multiplex immunohistochemistry and machine learning reveal distinct astrocyte subpopulations in Alzheimer's disease. 2019 Sept 5.

TEDxPhillipsExeter
Ayush Noori. The Neuroscience of *Non Sibi*. 2019 Oct 13, https://youtu.be/tHsDF0gehhM.

NEWS AND MEDIA

Advances in Motion at MassGeneral Hospital
Natural Language Processing Improves the Speed, Reliability of Determining Cognitive Status from Electronic Health Records. 2023 Feb 7, https://advances.massgeneral.org/neuro/journal.aspx?id=2411.

Physician's Weekly
Natural Language Processing Annotation Tool Improves Cognitive Phenotyping in Electronic Health Records. 2022 Dec 5, https://www.physiciansweekly.com/natural-language-processing-annotation-tool-improves-cognitive-phenoty.

The Harvard Crimson
Kyle L. Mandell. For Ayush Noori, Juggling Freshman Year and Neurodegeneration Research. 2022 Mar 10, https://www.thecrimson.com/article/2022/3/10/ayush-noori-profile.

Phillips Exeter Academy
Sarah Pruitt. Ayush Noori. https://www.exeter.edu/people/ayush-noori.

Scholastic On Our Minds
Meet the 2020 Gold Portfolio Recipients: Jasmine Mason & Ayush Noori. 2020 May 26, https://oomscholasticblog.com/post/meet-2020-gold-portfolio-recipients-jasmine-mason-ayush-noori.

Keep In Mind! Newsletter of The Massachusetts Alzheimer's Disease Research Center
Talent Spotlight: Ayush Noori. 2020 Apr 10, https://www.madrc.org/wp-content/uploads/2016/09/Newsletter14.pdf.

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