Simon Liu

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Summary

I am an incoming MS1 at the David Geffen School of Medicine at the University of California Los Angeles, interested in the application of deep learning algorithms to improve patient diagnostic and therapeutic outcomes. My recent work involves applying natural language processing and image classification to medical genetics datasets.

Education

Doctor of Medicine, University of California Los Angeles, Los Angeles, CA. (expected May 2027) 08/2023 - present
DGSOM Scholarship for Excellence

Bachelor of Science, Biomedical Engineering, Johns Hopkins University, Baltimore, MD. 08/2017 - 05/2021
Also completed B.S. major requirements for Computer Science
Linda Trinh Memorial Award, Provost's Undergraduate Research Award, Joseph F. Strohecker Scholarship
Honors: Upsilon Pi Epsilon, Dean's list, general & BME+CS departmental honors
GPA: 3.69

Experience

Research

Postbaccalaureate Fellow, National Human Genome Research Institute, Bethesda, MD. 07/2021 - 07/2023
With Benjamin Solomon

Software Engineer, Neuroplastic Surgery Research Laboratory, Johns Hopkins University, Baltimore, MD, USA. 02/2020 - 05/2021
With Chad Gordon.
Received Provost's Undergraduate Research Award 2020-21 [award] [news]

Research Analyst, School of Medicine, Johns Hopkins University, Baltimore, MD, USA. 12/2018 - 03/2020
With Susan Hutfless

Laboratory Assistant, STAR-ORC, University of Maryland School of Medicine, Baltimore, MD, USA. 07/2018 - 03/2020
With Junfang Wu

Volunteering

Care Coordinator, Pan Asian Volunteer Health Clinic, Chinese Culture and Community Service Center, Gaithersburg, MD. 10/2021 - 07/2023
With Mo-Ping Chow and Yaoyao Zhu

Teaching

Course Assistant, Department of Computer Science, Johns Hopkins University, Baltimore, MD, USA. 08/2020 - 05/2021
With Kwame Kutten

Leadership

Vice President of Finance, Alpha Kappa Psi, Rho Psi Chapter, Baltimore, MD, USA 11/2019 - 12/2020
Pledge Educator, Alpha Kappa Psi, Rho Psi Chapter, Baltimore, MD, USA 05/2019 - 11/2019
Head of Manufacturing, Health 3D, LLC, Baltimore, MD, USA. 04/2018 - 05/2021

Publications

A list is also available on Google Scholar and Web of Science.

Journal Articles

Liu, Y., Chen, S., **Liu, S.**, Wallace, K. L., Zille, M., Zhang, J., Wang, J., & Jiang, C. (2023). T-cell receptor signaling modulated by the co-receptors: Potential targets for stroke treatment. Pharmacological Research, 192, 106797. https://doi.org/10.1016/j.phrs.2023.106797 [pdf] J-10

Zhang, Z., Li, Y., Shi, J., Zhu, L., Dai, Y., Fu, P., **Liu, S.**, Hong, M., Zhang, J., Wang, J., & Jiang, C. (2022). Lymphocyte-related immunomodulatory therapy with Siponimod (BAF-312) improves outcomes in mice with acute intracerebral hemorrhage. Aging and Disease. https://doi.org/10.14336/ad.2022.1102 [pdf] J-9

Jiang, C., Guo, H., Zhang, Z., Wang, Y., **Liu, S.**, Lai, J., Wang, T. J., Li, S., Zhang, J., Zhu, L., Fu, P., Zhang, J., & Wang, J. (2022). Molecular, pathological, clinical, and therapeutic aspects of perihematomal edema in different stages of intracerebral hemorrhage. Oxidative Medicine and Cellular Longevity, 2022, 1–38. https://doi.org/10.1155/2022/3948921 [pdf] J-8

Hutfless, S., Shiratori, Y., Chu, D., **Liu, S.**, & Kalloo, A. (2022). Risk factors for infections after endoscopic retrograde cholangiopancreatography (ERCP): A retrospective cohort analysis of US Medicare Fee-for-Service claims, 2015–2021. BMJ Open, 12(9). https://doi.org/10.1136/bmjopen-2022-065077 [pdf] J-7

Sun, C., Han, Y., Zhang, R., **Liu, S.**, Wang, J., Zhang, Y., Chen, X., Jiang, C., Wang, J., Fan, X., & Wang, J. (2022). Regulated necrosis in COVID-19: A double-edged sword. Frontiers in Immunology, 13. https://doi.org/10.3389/fimmu.2022.917141 [pdf] J-6

Hutfless, S., Jasper, R. A., Tilak, A., Ghosh, T., Kedia, S., **Liu, S.**, Urrunaga, N. H., Josephson, M., Narang, A., Miller, S., Chen, P.-H., Joseph, S., & Brant, S. R. (2022). A systematic review of Crohn's disease case definitions in administrative or claims databases. Inflammatory Bowel Diseases. https://doi.org/10.1093/ibd/izac131 [pdf] J-5

Ledgister Hanchard, S. E.*, Dwyer, M. C.*, **Liu, S.***, Hu, P., Tekendo-Ngongang, C., Waikel, R. L., Duong, D., & Solomon, B. D. (2022). Scoping review and classification of Deep Learning in Medical Genetics. Genetics in Medicine. https://doi.org/10.1016/j.gim.2022.04.025 *Co-first authors. [pdf] J-4

Duong, D., Hu, P., Tekendo-Ngongang, C., Hanchard, S. E., **Liu, S.**, Solomon, B. D., & Waikel, R. L. (2022). Neural networks for classification and image generation of aging in genetic syndromes. Frontiers in Genetics, 13. https://doi.org/10.3389/fgene.2022.864092 [pdf] J-3

Li, Y., Ritzel, R. M., He, J., Cao, T., Sabirzhanov, B., Li, H., **Liu, S.**, Wu, L. J., & Wu, J. (2021). The voltage-gated proton channel Hv1 plays a detrimental role in contusion spinal cord injury via extracellular acidosis-mediated neuroinflammation. Brain, behavior, and immunity, 91, 267–283. https://doi.org/10.1016/j.bbi.2020.10.005 [pdf] J-2

Li, Y., Ritzel, R. M., Khan, N., Cao, T., He, J., Lei, Z., Matyas, J. J., Sabirzhanov, B., **Liu, S.**, Li, H., Stoica, B. A., Loane, D. J., Faden, A. I., & Wu, J. (2020). Delayed microglial depletion after spinal cord injury reduces chronic inflammation and neurodegeneration in the brain and improves neurological recovery in male mice. Theranostics, 10(25), 11376–11403. https://doi.org/10.7150/thno.49199 [pdf] J-1

Conference Papers

Kenet, A., Mahadevan, E., Elangovan, S., Yan, J., Siddiq, K., **Liu, S.**, Ladwa, A., Narayanan, R., Dakkak, J., Benassi, T., Ng, K., & Manbachi, A. (2020). Flexible piezoelectric sensor for real-time image-guided colonoscopies: a solution to endoscopic looping challenges in clinic. Proc. SPIE 11315, Medical Imaging 2020: Image-Guided Procedures, Robotic Interventions, and Modeling, 1131520 (16 March 2020). https://doi.org/10.1117/12.2548873 [pdf] C-1

Meeting Abstracts

Patel, R., Palamuttam, N., Choi, Y., Diamreyan, M., **Liu, S.**, Park, S.J., Salazar, S., & Goeddel, L. (2021). Intraoperative hypotension before critical care admission is common but not associated with in hospital mortality in non-cardiac surgery. Anesthesia & Analgesia, 132(5S):859-862. https://doi.org/10.1213/01.ane.0000803544.47940.c7 [pdf] A-3

Hutfless, S. M., Chu, D., **Liu, S.**, & Kalloo, A. N. (2020). Predictors of ERCP-associated infections in outpatient hospitals. Gastrointestinal Endoscopy, 91(6). https://doi.org/10.1016/j.gie.2020.03.3314 [pdf] A-2

Hutfless, S. M., Chen, P.-H., Miller, S. D., Josephson, M., Joseph, S., Urrunaga, N., Kedia, S., **Liu, S.**, Arya, N., Hobstetter, L., Persad, P., Yeretssian, G., & Brant, S. R. (2020). Would K50* by any other name smell so sweet? A systematic review of claims-based Crohn's disease case definitions. Gastroenterology, 158(6). https://doi.org/10.1016/s0016-5085(20)31712-1 [pdf] A-1

Presentations

Liu, S.. Applications of deep learning in medical genetics. Presented at the June 2023 NHGRI Medical Genetics Branch meeting; Bethesda, MD. [pdf] [pic] P-2

Liu, S., Ledgister Hanchard, S., Dwyer, M.C., Hu, P., Tekendo-Ngongang, C., Waikel, R.L., Duong, D., & Solomon, B.D. Applications of deep learning in medical genetics. Poster presented at: NIH Virtual Postbac Poster Day 2022; Bethesda, MD. [pdf] P-1

Selected Honors

Outstanding Volunteer Award, Chinese Culture and Community Service Center, Gaithersburg, MD, USA 11/2022

Awarded at the Chinese Culture and Community Service Center 40th Anniversary Celebration [award] [yearbook]

Linda Trinh Memorial Award, Johns Hopkins University, Baltimore, MD, USA 05/2021

Project: COVID-19 PPE Manufacturing Proposal: Consortium for 3D-Printed Headbands for Face Shields [blog] [news]
With Y. Bai, J. Feitelberg, K. Hu, S. Kumar, K. Leo, J. Li, C. Shallal, and N. Zhang

Intuitive Surgical Best Project Award Runner Up, Deep Learning course, Johns Hopkins University, Baltimore, MD, USA. 12/2020
Project: Detection and Segmentation of Pneumothoraces in Chest X-ray. [report] [pdf] [award]
With F. Shao, Y. Huang, and A. Harmalkar.

Provost's Undergraduate Research Award, Johns Hopkins University, Baltimore, MD, USA. 11/2020
Project: Implementing Electronic Beam Steering in an Implantable Ultrasound Device [award] [news]
With Chad Gordon.

Upsilon Pi Epsilon, Johns Hopkins University, Baltimore, MD, USA. 10/2020
International Honor Society for the Computing and Information Disciplines

Joseph F. Strohecker Scholarship, Johns Hopkins University, Baltimore, MD, USA. 11/2017
Maryland Seal of Biliteracy, Maryland State Department of Education, Rockville, MD, USA. 06/2017

Selected Press

Liu, Simon. **"Making an Impact Outside of the Laboratory."** Office of Equity, Diversity, and Inclusion, National Institutes of Health. May 1, 2023. 2023

Stokel-Walker, Chris. **"Amid war fears, archivists are racing to preserve Ukraine's internet."** Input Mag. February 18, 2022. 2022

Calabresi, Kaitlyn. **"Interview with Health 3D."** TCO Labs. November 20, 2019. 2019

Sangana, Neha. **"Conference highlights student startups in Md."** The Johns Hopkins News-Letter. November 15, 2018. 2018

Selected Coursework

National Institutes of Health

BIOF398.81 Practical Deep Learning

Johns Hopkins University

EN.580.475 Biomedical Data Science
EN.580.480 Precision Care Medicine I
EN.580.481 Precision Care Medicine II
EN.580.488 Foundations of Computational Biology and Bioinformatics
EN.601.455 Computer Integrated Surgery I
EN.601.496 Computer Integrated Surgery II
EN.601.475 Machine Learning
EN.601.481 Machine Learning: Deep Learning

Metadata

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Based on markdown-cv by Eliseo Papa with styles based on David Whipp.

Last updated: June 20, 2023