Simon Liu

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Summary

I am a postbaccalaureate IRTA fellow at the National Institutes of Health interested in deep learning algorithms that improve patient outcomes. My recent work involves applying natural language processing to public and private datasets to build models for extracting patient and language annotators. I am a member of the Medical Genomics Unit at the National Human Genome Research Institute.

Education

B.S., Biomedical Engineering, Johns Hopkins University, Baltimore, MD. 08/2017 - 05/2021
Also completed B.S. major requirements for Computer Science
Honors: Upsilon Pi Epsilon, general honors, Dean's list
GPA: 3.69

Research Experience

Postbaccalaureate Fellow, National Human Genome Research Institute, Bethesda, MD. 07/2021 - present
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]

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

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

Volunteer Experience

Care Coordinator, Pan Asian Volunteer Health Clinic, Chinese Culture and Community Service Center, Gaithersburg, MD. 10/2021 - present
With Kate Lu and Yaoyao Zhu

Publications

A list is also available on Google Scholar and Publons.

Journal Articles

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 *Equal contributions. [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., 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-2

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-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 C-1

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]

Meeting Abstracts

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., 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. [poster] [pdf] P-1

Selected Honors

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] [ppt] [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

Maryland Seal of Biliteracy, Maryland State Department of Education, Rockville, MD, USA. 06/2017

Selected Press

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

Computer Integrated Surgery I
Computer Integrated Surgery II
Machine Learning
Machine Learning: Deep Learning
Biomedical Data Science
Precision Care Medicine I
Precision Care Medicine II
Foundations of Computational Biology and Bioinformatics

Extracurricular Experience

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

Metadata

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

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