

Stanford



Amir Bahmani

Instructor, Genetics

CONTACT INFORMATION

- **Alternate Contact**

Amir Bahmani

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Bio

BIO

Amir Bahmani is a Genetics Instructor and Director of Stanford's Deep Data Research Center (<https://deepdata.stanford.edu>) at the Stanford School of Medicine. He has worked on distributed and parallel computing applications since 2008. Amir is currently an active researcher in the VA Million Veteran Program (MVP), Human Tumor Atlas Network (HTAN), Human BioMolecular Atlas Program (HuBMAP), Stanford Metabolic Health Center (MHC), Integrated Personal Omics Profiling (iPOP), and Bridge to Artificial Intelligence (Bridge2AI).

His team has designed and developed several notable cloud-scale frameworks, including the Personal Health Dashboard (PHD), cloud-based cost-saving platforms such as Hummingbird and Swarm, and the MyPHD platform, which now has over 12,000 participants and hosts more than 37 studies. His team also created Stanford Data Ocean (SDO), an innovative platform for educating engineers and biologists. SDO is the first serverless multi-omics and wearables data platform used for education and training.

Since 2017, he has trained more than 30 graduate interns (engineers and designers) from outside the School of Medicine, engaging them in the field of medicine. His course has been offered to physicians, biologists, engineers, and designers, earning him recognition as the recipient of Stanford's 2024 Walter J. Gores Award for Excellence in Teaching. In 2023, he received the Terman Mentorship Award for mentoring Terman Fellow Ryan Park (top 1%), who transitioned to a Genetics PhD program inspired by Amir's course. Committed to accessibility in education, Amir created a first-of-its-kind scholarship for under-resourced communities at Stanford, providing his course free of charge—along with Genetics certificates—to over 4,500 students from under-resourced backgrounds across 104 countries and all 50 U.S. states.

ACADEMIC APPOINTMENTS

- Instructor, Genetics
- Member, Stanford Cancer Institute
- Member, Wu Tsai Neurosciences Institute

HONORS AND AWARDS

- Anthem Awards for SDO: Community Voice, Silver in Product, Bronze in AI & Emerging Company, The Webby Awards (2024)
- Don Norman Design Award for Stanford Data Ocean (SDO), Don Norman Design Award (DNDA) (2024)

- Walter J. Gores Award for Excellence in Teaching, Stanford University (2024)
- Alumni 'Rising Star' Award, North Carolina State University (2022)
- Graduate Student Leadership Award, North Carolina State University (2016)

BOARDS, ADVISORY COMMITTEES, PROFESSIONAL ORGANIZATIONS

- Director, Deep Data Research Computing Center (2021 - present)

PROFESSIONAL EDUCATION

- Ph.D., North Carolina State University , Computer Science (2017)
- M.S., North Carolina State University , Computer Science (2014)

LINKS

- Personal Website: <http://web.stanford.edu/~abahman/>
- LinkedIn: <https://www.linkedin.com/in/amir-bahmani-82b8ba8a/>

Teaching

COURSES

2023-24

- Cloud Computing for Biology and Healthcare: BIOMEDIN 222, CS 273C, GENE 222 (Spr)

2022-23

- Cloud Computing for Biology and Healthcare: BIOMEDIN 222, CS 273C, GENE 222 (Spr)

Publications

PUBLICATIONS

- **Achieving inclusive healthcare through integrating education and research with AI and personalized curricula.** *Communications medicine*
Bahmani, A., Cha, K., Alavi, A., Dixit, A., Ross, A., Park, R., Goncalves, F., Ma, S., Saxman, P., Nair, R., Akhavan-Sarraf, R., Zhou, X., Wang, et al
2025; 5 (1): 356
- **AI-READI: rethinking AI data collection, preparation and sharing in diabetes research and beyond** *NATURE METABOLISM*
Baxter, S. L., de Sa, V. R., Ferryman, K., Jain, P., Lee, C. S., Li-Pook-Than, J., Liu, T., Owen, J. P., Patel, B., Yu, Q., Zangwill, L. M., Bahmani, A., Chute, et al
2024
- **Real-time alerting system for COVID-19 and other stress events using wearable data.** *Nature medicine*
Alavi, A., Bogu, G. K., Wang, M., Rangan, E. S., Brooks, A. W., Wang, Q., Higgs, E., Celli, A., Mishra, T., Metwally, A. A., Cha, K., Knowles, P., Alavi, et al
2021
- **A scalable, secure, and interoperable platform for deep data-driven health management.** *Nature communications*
Bahmani, A., Alavi, A., Buerger, T., Upadhyayula, S., Wang, Q., Ananthakrishnan, S. K., Alavi, A., Celis, D., Gillespie, D., Young, G., Xing, Z., Nguyen, M. H., Haque, et al
2021; 12 (1): 5757
- **Hummingbird: Efficient Performance Prediction for Executing Genomic Applications in the Cloud.** *Bioinformatics (Oxford, England)*
Bahmani, A., Xing, Z., Krishnan, V., Ray, U., Mueller, F., Alavi, A., Tsao, P. S., Snyder, M. P., Pan, C.
2021
- **Swarm: A federated cloud framework for large-scale variant analysis.** *PLoS computational biology*
Bahmani, A. n., Ferriter, K. n., Krishnan, V. n., Alavi, A. n., Alavi, A. n., Tsao, P. S., Snyder, M. P., Pan, C. n.
2021; 17 (5): e1008977

- **Advances and prospects for the Human BioMolecular Atlas Program (HuBMAP).** *Nature cell biology*
Jain, S., Pei, L., Spraggins, J. M., Angelo, M., Carson, J. P., Gehlenborg, N., Ginty, F., Gonçalves, J. P., Hagood, J. S., Hickey, J. W., Kelleher, N. L., Laurent, L. C., Lin, et al
2023
- **A method for intelligent allocation of diagnostic testing by leveraging data from commercial wearable devices: a case study on COVID-19.** *NPJ digital medicine*
Shandhi, M. M., Cho, P. J., Roghanizad, A. R., Singh, K., Wang, W., Enache, O. M., Stern, A., Sbahi, R., Tatar, B., Fiscus, S., Khoo, Q. X., Kuo, Y., Lu, et al
2022; 5 (1): 130
- **A Method for Intelligent Allocation of Diagnostic Testing by Leveraging Data from Commercial Wearable Devices: A Case Study on COVID-19.** *Research square*
Dunn, J., Shandhi, M. H., Cho, P., Roghanizad, A., Singh, K., Wang, W., Enache, O., Stern, A., Sbahi, R., Tatar, B., Fiscus, S., Khoo, Q. X., Kuo, et al
2022
- **Five-year pediatric use of a digital wearable fitness device: lessons from a pilot case study.** *JAMIA open*
Butte, K. D., Bahmani, A., Butte, A. J., Li, X., Snyder, M. P.
2021; 4 (3): ooab054
- **Wearable sensors enable personalized predictions of clinical laboratory measurements.** *Nature medicine*
Dunn, J., Kidzinski, L., Runge, R., Witt, D., Hicks, J. L., Schussler-Fiorenza Rose, S. M., Li, X., Bahmani, A., Delp, S. L., Hastie, T., Snyder, M. P.
2021
- **Early Detection of SARS-CoV-2 and other Infections in Solid Organ Transplant Recipients and Household Members using Wearable Devices.** *Transplant international : official journal of the European Society for Organ Transplantation*
Keating, B. J., Mukhtar, E. H., Elftmann, E. D., Eweje, F. R., Gao, H., Ibrahim, L. I., Kathawate, R. G., Lee, A. C., Li, E. H., Moore, K. A., Nair, N., Chaluvadi, V., Reason, et al
2021
- **Pre-symptomatic detection of COVID-19 from smartwatch data.** *Nature biomedical engineering*
Mishra, T., Wang, M., Metwally, A. A., Bogu, G. K., Brooks, A. W., Bahmani, A., Alavi, A., Celli, A., Higgs, E., Dagan-Rosenfeld, O., Fay, B., Kirkpatrick, S., Kellogg, et al
2020
- **The Human Tumor Atlas Network: Charting Tumor Transitions across Space and Time at Single-Cell Resolution.** *Cell*
Rozenblatt-Rosen, O., Regev, A., Oberdoerffer, P., Nawy, T., Hupalowska, A., Rood, J. E., Ashenberg, O., Cerami, E., Coffey, R. J., Demir, E., Ding, L., Esplin, E. D., Ford, et al
2020; 181 (2): 236–49
- **Molecular Choreography of Acute Exercise.** *Cell*
Contrepois, K. n., Wu, S. n., Moneghetti, K. J., Hornburg, D. n., Ahadi, S. n., Tsai, M. S., Metwally, A. A., Wei, E. n., Lee-McMullen, B. n., Quijada, J. V., Chen, S. n., Christle, J. W., Ellenberger, et al
2020; 181 (5): 1112–30.e16
- **VCFC: Structural and Semantic Compression and Indexing of Genetic Variant Data**
Ferriter, K., Mueller, F., Bahmani, A., Pan, C.
edited by Park, T., Cho, Y. R., Hu, Yoo, Woo, H. G., Wang, J., Facelli, J., Nam, S., Kang, M.
IEEE COMPUTER SOC.2020: 200-203
- **The human body at cellular resolution: the NIH Human Biomolecular Atlas Program** *NATURE*
Snyder, M. P., Lin, S., Posgai, A., Atkinson, M., Regev, A., Rood, J., Rozenblatt-Rosen, O., Gaffney, L., Hupalowska, A., Satija, R., Gehlenborg, N., Shendure, J., Laskin, et al
2019; 574 (7777): 187–92
- **Longitudinal multi-omics of host-microbe dynamics in prediabetes.** *Nature*
Zhou, W., Sailani, M. R., Contrepois, K., Zhou, Y., Ahadi, S., Leopold, S. R., Zhang, M. J., Rao, V., Avina, M., Mishra, T., Johnson, J., Lee-McMullen, B., Chen, et al
2019; 569 (7758): 663–71