

Samuel G. Finlayson

Curriculum Vitae

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Education

- 2022 **Harvard Medical School and Massachusetts Institute of Technology, Cambridge, MA,**
M.D.
Harvard-MIT Division of Health Sciences and Technology
- 2020 **Harvard Medical School and Massachusetts Institute of Technology, Cambridge, MA,**
Ph.D.
Systems, Synthetic, and Quantitative Biology
Advisors: Isaac Kohane (HMS DBMI) and Peter Szolovits (MIT CSAIL)
- 2014 **Stanford University, Stanford, CA,**
M.S.
Biomedical Informatics
- 2013 **Stanford University, Stanford, CA,**
B.A.
Human Biology (Specialization: Biomedical Computation)

Post-Doctoral Training

- 2026 **University of Washington and Seattle Children's Hospital, Seattle, WA.**
Residency, Clinical Genetics
- 2026 **University of Washington and Seattle Children's Hospital, Seattle, WA.**
Residency, Pediatrics
- 2023 **University of Washington and Seattle Children's Hospital, Seattle, WA.**
Internship, Pediatrics

Academic Appointments

- 2026–Present Clinical Assistant Professor, Clinical and Biochemical Genetics, Seattle Children's Hospital, Seattle, WA
- 2026–Present Affiliate Member, Treuman Katz Center for Pediatric Bioethics and Palliative Care, Seattle Children's Hospital, Seattle, WA

Non-Academic Appointments

- 2016–2020 Doctoral Researcher, Advisors: Isaac Kohane, Harvard Department of Biomedical Informatics and Peter Szolovits, MIT Computer Science & Artificial Intelligence Laboratory, Boston, MA
- 2013–2014 Masters Researcher, Advisor: Nigam Shah, Stanford Department of Biomedical Informatics, Stanford, CA

- 2013–2014 Undergraduate Researcher, Advisor: Daniel Rubin, Stanford Department of Biomedical Informatics, Stanford, CA
- 2012–2013 Undergraduate Researcher, Preceptor: Joseph Madsen, Boston Children's Hospital, Boston, MA

Committees, Boards, and Consultants

- 2025–Present Member, AI Review Board, Seattle Children's Hospital
- 2025–Present Organizer, AI Therapeutics Actionability Challenge, Symposium on Artificial Intelligence for Learning Health Systems (SAIL)
- 2024–Present Associate Editor, Editorial Board, NEJM AI
- 2024–Present Member, Medical Advisory Board, OpenEvidence (For-profit organization)
 - 2026 Program Co-Chair, ACM Conference on Health, Inference, and Learning (CHIL) 2026
 - 2026 Program Committee Member, Symposium on Artificial Intelligence for Learning Health Systems (SAIL) 2026
 - 2024 Program Committee Member, Symposium on Artificial Intelligence for Learning Health Systems (SAIL) 2024
 - 2022 Session Chair, Pacific Symposium on Biocomputing 2022, Session: Precision Medicine: Using Artificial Intelligence to improve diagnostics and healthcare
- 2022–2023 Consultant, Perlara (Public benefit corporation)
 - 2021 Program Committee Member, Symposium on Artificial Intelligence for Learning Health Systems (SAIL) 2021
 - 2020 Proceedings Co-Chair, ACM Conference on Health, Inference, and Learning (CHIL) 2020
 - 2020 Founding Organizer and Program Committee Member, Symposium on Artificial Intelligence for Learning Health Systems (SAIL) 2020
 - 2019 Program Co-Chair, Machine Learning for Health Workshop (ML4H) at the Conference on Neural Information Processing Systems (NeurIPS) 2019
 - 2018 Program Co-Chair, Machine Learning for Health Workshop (ML4H) at the Conference on Neural Information Processing Systems (NeurIPS) 2018
- 2017–2018 Consultant, Nference (For-profit organization)
- 2016–2017 Admissions Committee, Harvard Medical School
- 2013–Present Member, Research Advisory Committee, Hydrocephalus Association (Non-profit organization)
- 2008–Present Cofounder, Chief Scientific Officer, Board Member. Team Hydro (Non-profit organization)

Clinical Research

- 2025–Present Sub-Investigator, Clinical Trial NCT06892288, "A Study to Assess the Efficacy and Safety of Weekly Doses of GLM101 in Participants With PMM2-CDG", Glycomine

Teaching

- 2025–Present **Course Organizer and Lecturer**, *University of Washington*, Seattle, WA.
AI Citizenship for Clinicians; an AI curriculum for medical students in use by the University of Washington.

- 2015 **Teaching Assistant**, *Harvard-MIT Health Sciences, and Technology*, Boston, MA.
HST 190: Introduction to Biostatistics (Prof. Rebecca Betensky) and HST 015: Matlab for Medicine (Prof. Matthew Frosch).
- 2012–2013 **Teaching Assistant**, *Department of Computer Science*, Stanford University, Stanford, CA.
CS 181: Ethics in computer science (Prof. Stephen Cooper) and CS 103: Mathematical Foundations of Computing (Profs. Ma and Colgrove).
- 2013 **Teaching Assistant**, *Department of Biology*, Stanford University, Stanford, CA.
BIO 112/212 Human Physiology (Prof. Daniel Garza).

Additional Journal Referee Activities

- 2018–Present Referee for: *New England Journal of Medicine*, *Journal of Biomedical Informatics*, *Journal of Pediatrics*, *Pacific Symposium on Biocomputing*, *NeurIPS Machine Learning for Health Workshop*

Journal Articles and CS Conference Proceedings

R. Shao, A. Asai, S. Z. Shen, H. Ivison, V. Kishore, J. Zhuo, X. Zhao, M. Park, **SG Finlayson**, D. Sontag, et al.. Dr tulul: Reinforcement learning with evolving rubrics for deep research. *Proceedings of the 43rd International Conference on Machine Learning* **2026**.

SG Finlayson, A. Wightman, E. M. Weiss, V. Gallo, D. S. Diekema, C. Sarabu, H. H. Vo, K. E. MacDuffie, M. L. Mazwi, Y.-H. C. Lin, D. J. Opel. Building the Foundations for Trustworthy AI in Pediatrics. *Pediatrics* **2026**.

M. Martos, B. Fields, **SG Finlayson**, N. Hartell, T. Kim, E. Larimer, J. J. Lau, Y.-H. Lin, T. Salaguinto, N. Tran, et al.. Accuracy of Artificial Intelligence vs Professionally Translated Discharge Instructions. *JAMA Network Open* **2025**, 8, e2532312–e2532312.

O. Kim-McManus, J. G. Gleeson, L. Mignon, A. Smith Fine, W. Yan, ..., **SG Finlayson**, T. Yu. A framework for N-of-1 trials of individualized gene-targeted therapies for genetic diseases. *Nature communications* **2024**, 15, 9802.

D. Levine, R. Tuwani, B. Kompa, A. Varma, **SG Finlayson**, A. Mehrotra, A. Beam. The diagnostic and triage accuracy of the GPT-3 artificial intelligence model. *The Lancet Digital Health* **2024**.

A. S. Koti, A. Lanis, **SG Finlayson**, S. Canny, E. A. Feldman, D. E. Miller, N. Rosenwasser, A. A. Scott, S. C. Wong, K. W. Feldman. Subdural hemorrhage, macrocephaly, rash, and developmental delay in an infant: A pathogenic variant in NLRP3 causes CINCA/NOMID. *American journal of medical genetics. Part A* **2023**.

E. Alsentzer*, **SG Finlayson***, M. L. Michelle, U. D. Network, S. Kobren, I. Kohane. Simulation of undiagnosed patients with novel genetic conditions. *Nature Communications* **2023**.

SG Finlayson, A. Beam, M. van Smeden. Machine Learning and Statistics in Clinical Research Articles – Moving Past the False Dichotomy. *JAMA pediatrics* **2023**, 177, 448–450.

SG Finlayson, A. Subbaswamy, K. Singh, J. Bowers, A. Kupke, J. Zittrain, I. Kohane, S. Saria. The clinician and dataset shift in artificial intelligence. *New England Journal of Medicine* **2021**.

E. Korot, Z. Guan, D. Ferraz, S. K. Wagner, G. Zhang, X. Liu, L. Faes, N. Pontikos, **SG Finlayson**, H. Khalid, et al.. Code-free deep learning for multi-modality medical image classification. *Nature Machine Intelligence* **2021**, 1–11.

SG Finlayson, M. McDermott, A. Pickering, S. Lipnick, W. Yuan, I. Kohane. Cross-Modal Representation Alignment of Transcriptional Profiles and Small Molecule Therapeutics. *Pacific Symposium on Biocomputing* **2021**.

E. Alsentzer*, **SG Finlayson***, M. Li, M. Zitnik. Sugraph Neural Networks. *Advances in neural information processing systems (NeurIPS)* **2020**.

B. K. Beaulieu-Jones, **SG Finlayson**, W. Yuan, R. B. Altman, I. S. Kohane, V. Prasad, K.-H. Yu. Examining the use of real-world evidence in the regulatory process. *Clinical Pharmacology & Therapeutics* **2020**, *107*, 843–852.

B. Beaulieu-Jones, **SG Finlayson**, C. Chivers, I. Chen, M. McDermott, J. Kandola, A. V. Dalca, A. Beam, M. Fiterau, T. Naumann. Trends and Focus of Machine Learning Applications for Health Research. *JAMA network open* **2019**, *2*, e1914051–e1914051.

SG Finlayson, J. D. Bowers, J. Ito, J. L. Zittrain, A. L. Beam, I. S. Kohane. Adversarial attacks on medical machine learning. *Science* **2019**, *363*, 1287–1289.

S. L. Lipnick, D. M. Agniel, R. Aggarwal, N. R. Makhortova, **SG Finlayson**, A. Brocato, N. Palmer, B. T. Darras, I. Kohane, L. L. Rubin. Systemic nature of spinal muscular atrophy revealed by studying insurance claims. *PLoS one* **2019**, *14*, e0213680.

T. Gurry, **HST Microbiome Consortium**, S. M. Gibbons, S. M. Kearney, A. Ananthakrishnan, X. Jiang, C. Duvallet, Z. Kassam, E. J. Alm, et al.. Predictability and persistence of prebiotic dietary supplementation in a healthy human cohort. *Scientific Reports* **2018**, *8*, 12699.

X. Tu, M. Xie, J. Gao, Z. Ma, D. Chen, Q. Wang, **SG Finlayson**, Y. Ou, J.-Z. Cheng. Automatic Categorization and Scoring of Solid, Part-Solid and Non-Solid Pulmonary Nodules in CT Images with Convolutional Neural Network. *Scientific Reports* **2017**, *7*.

SG Finlayson, M. Levy, S. Reddy, Rubin. Toward rapid learning in cancer treatment selection: an analytical engine for practice-based clinical data. *Journal of Biomedical Informatics* **2016**.

S. Tamang, M. Patel, D. Blayney, J. Kuznetsov, **SG Finlayson**, N. H. Shah. Detecting Unplanned Care from Unstructured Text in Electronic Health Records. *Journal of Oncology Practice* **2015**.

SG Finlayson, P. LePendou, N. H. Shah. Building the graph of medicine from millions of clinical narratives. *Scientific Data* **2014**, *1*.

R. Harpaz, A. Callahan, S. Tamang, Y. Low, D. Odgers, **SG Finlayson**, K. Jung, P. LePendou, N. H. Shah. Text Mining for Adverse Drug Events: the Promise, Challenges, and State of the Art. *Drug Safety* **2014**, *37*, 777–790.

Peer-Reviewed Workshop Papers

SG Finlayson, HK Lee, IS Kohane, L Oakden-Rayner Towards generative adversarial networks as a new paradigm for radiology education *Machine Learning for Health (NeurIPS Workshop)* **2018**.

BK Beaulieu-Jones, W Yuan, **SG Finlayson**, Z Wu Privacy-Preserving Distributed Deep Learning for Clinical Data *Machine Learning for Health (NeurIPS Workshop)* 2018.

Peer-Reviewed Conference Abstracts

Finlayson SG, Erin Phelps, Seth Perlman, Jaclyn Omura, Christina Lam Galactose Supplementation as a Novel Therapeutic Approach in GFPT1-CDG: A Case Report *CDG Care Conference* 2026.

Finlayson SG, Park K, Wenger T Expanding the neurodevelopmental phenotype of the HIVEP2-Related Disorder. *American Society of Human Genetics Conference*, Washington, D.C. 2023.

Finlayson SG, A Kotil, A Lanisl, A Scott, E Feldman, S Canny, K Feldman, D Miller Neonatal-onset multisystem inflammatory disease in a patient with hydrocephalus and concern for non-accidental trauma. *David W. Smith Workshop on Malformations and Morphogenesis*, Virginia Beach, VA. 2022.

Tamang S, **Finlayson SG**, Chen X, Kuznetsov JL, Blayney D, Patel M, Shah NG. Assessing the true nature of unplanned cancer care. *Journal of Clinical Oncology (Meeting Abstracts)*, Boston, MA. 2014.

Finlayson SG, Sochat V, Szabo L, Yancy L. A Rapid Learning System for Personalized Glioblastoma Treatment Planning. *AMIA Annual Symposium (Abstract, Focus Session Presentation)*, Washington, D.C.. 2013.

Book Chapters

Pollard T, Dernoncourt F, **Finlayson SG**, Velasquez A. "Data Preparation". *Secondary Analysis of Electronic Health Records*. Springer International Publishing, 2016. 101–114.

Invited Presentations (Selected)

- 2026 "Bringing together humans and AI to navigate the rare disease literature, Rare Disease Day", Seattle Children's Hospital, February 2026
- 2025 "Therapeutic Actionability AI Challenge: Harnessing AI to facilitate personalized therapeutics for patients with genetic diagnoses", SAIL Conference 2025, Puerto Rico. May, 2025.
- 2024 "Large Language Models in clinical practice: introduction, promise, and pitfalls", Pediatric Bioethics Conference, Seattle, WA. July, 2024.
- 2019 "Robust machine learning for highly vulnerable patients", HMS Media Fellows Program, Harvard Medical School. September 10, 2019.
- 2019 "AI algorithm design: key considerations for real-world performance", Tutorial and Panel Discussion. AI Workshop, ARVO 2019. April 27, 2019.
- 2018 "Learning from large-scale Real World Evidence: Challenges and Opportunities", UCB Pharmaceuticals, Chief Executive and Chief Scientific Officer Briefing. October 1, 2018.
- 2018 "Adversarial Attacks and the Potential for Deep Harm to the Healthcare System", Presentation and Panel, NLM Informatics Training Conference 2018.

Honors

- 2014 Medical Scientist Training Program, NIH Predoctoral Fellowship
- 2011 Academic All-American Honors, NCAA Division I Men's Water Polo
- 2011 Mountain Pacific Sports Federation All-Academic Honors
- 2007-2008, 2010-2012 Thomas Ford Family Endowed Scholarship, Stanford University Athletic Department
- 2007-2012 National Scholar, Coca-Cola Scholars Foundation
- 2007 Finalist, National Merit Scholar
- 2007 California State Scholar-Athlete of the Year, California Interscholastic Sports Federation
- 2007 National Winner, Wendy's High School Heisman Award
- 2004 2nd, American Physiological Society, Intel International Science and Engineering Fair
- 2004 Eagle Scout with Gold Palm, Boy Scouts of America

Volunteer Work

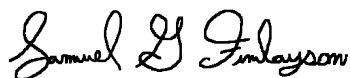
- 2008-Present **Co-Founder and Chief Scientific Officer, Team Hydro.**
Co-Founded non-profit organization to raise funds and awareness for Hydrocephalus research through open water swims throughout nation, including from Alcatraz Island to SF. Have raised more than \$1 Million+ to date. Oversee research efforts, including peer review process that has issued >10 grants to researchers across the world. Participate on research advisory committee of affiliated Hydrocephalus Association. Produce informational materials and website articles for lay public. Develop and maintain relationships with sponsors, donors, researchers, and swimmers. www.teamhydro.org
- 2011-2013 **Medical Interpreter, Pacific Free Clinic, Stanford, CA.**
Served as medical interpreter for Spanish-speaking patients at free community clinic. Assisted and followed patients from triage to departure. Selected via application and interview process and completed professional-grade 40-hour certification program.

Programming Languages

- Advanced R, PYTHON,SQL
- Intermediate Unix Scripting (awk, etc.), MATLAB, JAVA, C, C++, JULIA, Web Development (HTML, CSS, Javascript)

Languages

- English Native
- Spanish Full working proficiency



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