Stanford

Philip Chung

Instructor, Anesthesiology, Perioperative and Pain Medicine

Curriculum Vitae available Online

Bio

BIO

Philip Chung is a physician-scientist, general anesthesiologist, and healthcare AI researcher at Stanford University School of Medicine. He develops and evaluates AI systems that leverage electronic health records to support perioperative decision-making and patient safety. His research interests include large language models, healthcare foundation models, clinical AI evaluation, perioperative outcomes research, and the safe translation of AI technologies into real-world clinical practice. His work has been published in leading journals including NEJM AI, JAMA Surgery, Nature Medicine, and The Lancet Digital Health. In addition to his clinical practice at Stanford Hospital, he is also a member of Nima Aghaeepour's laboratory.

ACADEMIC APPOINTMENTS

- Instructor, Anesthesiology, Perioperative and Pain Medicine

HONORS AND AWARDS

- NIH T32 Postdoctoral Fellowship, Stanford Research in Anesthesia Training Program (2023-2024)
- Mentored Research Training Grant, Foundation for Anesthesia Education and Research (FAER) (2024-2026)

PROFESSIONAL EDUCATION

- Board Certification, American Board of Anesthesiology , Anesthesiology (2024)
- Residency, University of Washington , Anesthesiology (2023)
- Master of Science, UC Berkeley-UCSF Joint Graduate Group in Bioengineering , Bioengineering (emphasis in Translational Medicine) (2011)
- Bachelor of Science, UC Berkeley , Bioengineering (2010)

LINKS

- NALab Profile: https://nalab.stanford.edu/team/philip-chung/
- Google Scholar: https://scholar.google.com/citations?hl=en&user=30ay-W8AAAAJ&view_op=list_works&authuser=1&sortby=pubdate

Publications

PUBLICATIONS

- **Verifying Facts in Patient Care Documents Generated by Large Language Models Using Electronic Health Records** *NEJM AI*
  Chung, P., et al
  2025; 3 (1)
- **Large Language Model Capabilities in Perioperative Risk Prediction and Prognostication.** *JAMA surgery*
  Chung, P., Fong, C. T., Walters, A. M., Aghaeepour, N., Yetisgen, M., O'Reilly-Shah, V. N.

2024

- **Prediction of American Society of Anesthesiologists Physical Status Classification from preoperative clinical text narratives using natural language processing.** *BMC anesthesiology*
  Chung, P., Fong, C. T., Walters, A. M., Yetisgen, M., O'Reilly-Shah, V. N.
  2023; 23 (1): 296

- **Physician-Reported Safety Outcomes of AI-Generated Hospital Course Summaries.** *JAMA network open*
  Grolleau, F., Liang, A. S., Keyes, T., Ma, S. P., Lew, T., Huynh, T. R., Steele, N., Chung, P., Qin, P., Chandra, G., Wang, S. F., Mullen, E., Carpenter, et al
  2026; 9 (5): e2616556

- **Real-Time Deep Learning System for Forecasting Intraoperative Medication Bolus from Physiologic Dynamics**
  Yan, Y., Ghanem, M., Chung, P., Han, L., Aghaeepour, N.
  LIPPINCOTT WILLIAMS & WILKINS.2026

- **A Personalized AI Copilot for Anesthesia: Integrating Physiologic Signals and Clinical Reasoning to Improve Intraoperative Care**
  Ren, W., Chung, P., Goodell, A., Han, L., Aghaeepour, N.
  LIPPINCOTT WILLIAMS & WILKINS.2026

- **MedFactEval and MedAgentBrief: A Framework and Workflow for Generating and Evaluating Factual Clinical Summaries.** *Pacific Symposium on Biocomputing. Pacific Symposium on Biocomputing*
  Grolleau, F., Alsentzer, E., Keyes, T., Chung, P., Swaminathan, A., Aali, A., Hom, J., Huynh, T., Lew, T., Liang, A., Chu, W., Steele, N., Lin, et al
  2026; 31: 388-399

- **Holistic evaluation of large language models for medical tasks with MedHELM.** *Nature medicine*
  Bedi, S., Cui, H., Fuentes, M., Unell, A., Wornow, M., Banda, J. M., Kotecha, N., Keyes, T., Mai, Y., Oez, M., Qiu, H., Jain, S., Schettini, et al
  2026

- **Development and validation of a pre-trained language model for neonatal morbidities: a retrospective, multicentre, prognostic study.** *The Lancet. Digital health*
  Xie, F., Chung, P., Reiss, J. D., Tjoa, E., De Francesco, D., Phongpreecha, T., Haberkorn, W., Chakraborty, D., Chang, A. L., James, T., Kim, Y., Mataraso, S., Espinosa, et al
  2025: 100926

- **Evaluating Large Language Model Performance in Generating Clinically Relevant Intensive Care Unit Discharge Summaries.** *A&A practice*
  Mudumbai, S. C., Chung, P., Chen, J. Q., Litake, O., Regala, S., Madhok, J., Krause, M., Pearl, R. G., Boateng Evans, A., Gabriel, R. A.
  2025; 19 (9): e02057

- **Fidelity of Medical Reasoning in Large Language Models.** *JAMA network open*
  Bedi, S., Jiang, Y., Chung, P., Koyejo, S., Shah, N.
  2025; 8 (8): e2526021

- **Evaluating Large Language Model Performance in Generating Clinically Relevant ICU Discharge Summaries Using MIMIC-III and G-Eval**
  Mudumbai, S., Chung, P., Chen, J., Litake, O., Regala, S., Madhok, J., Krause, M., Pearl, R., Boateng, A., Gabriel, R.
  LIPPINCOTT WILLIAMS & WILKINS.2025: 153-155

- **Author Correction: AI-guided precision parenteral nutrition for neonatal intensive care units.** *Nature medicine*
  Phongpreecha, T., Ghanem, M., Reiss, J. D., Oskotsky, T. T., Mataraso, S. J., De Francesco, D., Reincke, S. M., Espinosa, C., Chung, P., Ng, T., Costello, J. M., Sequoia, J. A., Razdan, et al
  2025

- **AI-guided precision parenteral nutrition for neonatal intensive care units.** *Nature medicine*
  Phongpreecha, T., Ghanem, M., Reiss, J. D., Oskotsky, T., Mataraso, S. J., De Francesco, D., Reincke, S. M., Espinosa, C., Chung, P., Ng, T., Costello, J. M., Sequoia, J. A., Razdan, et al
  2025

- **Mitigation of outcome conflation in predicting patient outcomes using electronic health records.** *Journal of the American Medical Informatics Association : JAMIA*
  Reincke, S. M., Espinosa, C., Chung, P., James, T., Berson, E., Aghaeepour, N.
  2025

- **AnesthesiaChat: An Anesthesia-Specific Large Language Model Built from WikiAnesthesia**
  Goodell, A., Chung, P., Chu, L., Larson, B., Chu, S. N., Rishel, C.
  LIPPINCOTT WILLIAMS & WILKINS.2025

- **PregMedNet: Multifaceted Maternal Medication Impacts on Neonatal Complications.** *medRxiv : the preprint server for health sciences*
  Kim, Y., Marić, I., Kashiwagi, C. M., Han, L., Chung, P., Reiss, J. D., Butcher, L. D., Caoili, K. J., Berson, E., Xue, L., Espinosa, C., James, T., Shome, et al
  2025

- **Information Extraction from Clinical Texts with Generative Pre-trained Transformer Models.** *International journal of medical sciences*
  Kim, M. S., Chung, P., Aghaeepour, N., Kim, N.
  2025; 22 (5): 1015-1028

- **FactEHR: A Dataset for Evaluating Factuality in Clinical Notes Using LLMs**
  Munnangi, M., Swaminathan, A., Fries, J., Jindal, J., Narayanan, S., Lopez, I., Tu, L., Chung, P., Omiye, J. A., Kashyap, M., Shah, N.
  edited by Agrawal, M., Deshpande, K., Engelhard, M., Joshi, S., Tang, S., Urteaga
  JMLR-JOURNAL MACHINE LEARNING RESEARCH.2025

- **Generating pregnant patient biological profiles by deconvoluting clinical records with electronic health record foundation models.** *Briefings in bioinformatics*
  Seong, D., Mataraso, S., Espinosa, C., Berson, E., Reincke, S. M., Xue, L., Kashiwagi, C., Kim, Y., Shu, C. H., Chung, P., Ghanem, M., Xie, F., Wong, et al
  2024; 25 (6)

- **Single-cell peripheral immunoprofiling of lewy body and Parkinson's disease in a multi-site cohort.** *Molecular neurodegeneration*
  Phongpreecha, T., Mathi, K., Cholerton, B., Fox, E. J., Sigal, N., Espinosa, C., Reincke, M., Chung, P., Hwang, L. J., Gajera, C. R., Berson, E., Perna, A., Xie, et al
  2024; 19 (1): 59

- **Unlocking human immune system complexity through AI.** *Nature methods*
  Berson, E., Chung, P., Espinosa, C., Montine, T. J., Aghaeepour, N.
  2024; 21 (8): 1400-1402

- **Comprehensive overview of the anesthesiology research landscape: A machine Learning Analysis of 737 NIH-funded anesthesiology primary Investigator's publication trends.** *Heliyon*
  Ghanem, M., Espinosa, C., Chung, P., Reincke, M., Harrison, N., Phongpreecha, T., Shome, S., Saarunya, G., Berson, E., James, T., Xie, F., Shu, C. H., Hazra, et al
  2024; 10 (7): e29050

- **AnesthesiaChat: An Anesthesia-Specific Large Language Model Built from WikiAnesthesia**
  Goodell, A., Chung, P., Chu, L., Larson, B., Chu, S. N., Rishel, C.
  LIPPINCOTT WILLIAMS & WILKINS.2024

- **Transcriptional profiling of mouse projection neurons with VECTORseq.** *STAR protocols*
  Cheung, V., Chung, P., Feinberg, E. H.
  2022; 3 (3): 101625

- **Virally encoded connectivity transgenic overlay RNA sequencing (VECTORseq) defines projection neurons involved in sensorimotor integration.** *Cell reports*
  Cheung, V., Chung, P., Bjorni, M., Shvareva, V. A., Lopez, Y. C., Feinberg, E. H.
  2021; 37 (12): 110131

- **Case Report: Radiographic Identification of Intrapleural Misplacement of Epidural Catheter in an Intubated Post-Lung Transplant Patient.** *International medical case reports journal*
  Wu, J., Chung, P., Wu, E. H., Zhang, K., Komatsu, R.
  2021; 14: 823-828

- **Natural Language Processing Predicts ASA Physical Status Classification from Pre-operative Note Text**
  Chung, P., Fong, C. T., O'Reilly-Shah, V.
  LIPPINCOTT WILLIAMS & WILKINS.2021: 870-873

- **Compliance monitoring via a Bluetooth-enabled retainer: A prospective clinical pilot study.** *Orthodontics & craniofacial research*
  Castle, E., Chung, P., Behfar, M. H., Chen, M., Gao, J., Chiu, N., Nelson, G., Roy, S., Oberoi, S.
  2019; 22 Suppl 1: 149-153
- **Smart Diaphragm Study: Multi-omics profiling and cervical device measurements during pregnancy**
  Liang, L., Dunn, J. P., Chen, S., Tsai, M., Hornburg, D., Newmann, S., Chung, P., Avina, M., Leng, Y., Holman, R., Lee, T. H., Berrios, S., Qureshi, et al
  MOSBY-ELSEVIER.2019: S649
- **Galloping Heart.** *The New England journal of medicine*
  Phan, B. A., Chung, P.
  2017; 376 (21): e44
- **MyPectus: First-in-human pilot study of remote compliance monitoring of teens using dynamic compression bracing to correct pectus carinatum.** *Journal of pediatric surgery*
  Harrison, B., Stern, L., Chung, P., Etemadi, M., Kwiat, D., Roy, S., Harrison, M. R., Martinez-Ferro, M.
  2016; 51 (4): 608-11
- **Rapid and low-cost prototyping of medical devices using 3D printed molds for liquid injection molding.** *Journal of visualized experiments : JoVE*
  Chung, P., Heller, J. A., Etemadi, M., Ottoson, P. E., Liu, J. A., Rand, L., Roy, S.
  2014: e51745
- **Towards BirthAlert--A Clinical Device Intended for Early Preterm Birth Detection.** *IEEE transactions on bio-medical engineering*
  Etemadi, M., Chung, P., Heller, J. A., Liu, J. A., Rand, L., Roy, S.
  2013; 60 (12): 3484-93
- **Novel device to trend impedance and fluorescence of the cervix for preterm birth detection.** *Annual International Conference of the IEEE Engineering in Medicine and Biology Society. IEEE Engineering in Medicine and Biology Society. Annual International Conference*
  Etemadi, M., Chung, P., Heller, J. A., Liu, J., Grossman-Kahn, R., Rand, L., Roy, S.
  2013; 2013: 176-9
- **Fabric-based pressure sensor array for decubitus ulcer monitoring.** *Annual International Conference of the IEEE Engineering in Medicine and Biology Society. IEEE Engineering in Medicine and Biology Society. Annual International Conference*
  Chung, P., Rowe, A., Etemadi, M., Lee, H., Roy, S.
  2013; 2013: 6506-9