# PHILIP CHUNG

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## EDUCATION:

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|---|---|---|
| University of California, San Francisco (UCSF) | M.D. Medicine | *2014-2019* |
| UC Berkeley & UCSF Joint Graduate Program in Bioengineering | M.S. Bioengineering | *2010-2011* |
| University of California, Berkeley (UC Berkeley) | B.S. Bioengineering | *2006-2010* |

## SKILLS:

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| Clinical: | General Anesthesia | Regional Anesthesia | Obstetric Anesthesia | Ultrasound |
| | Medicine | Clinical Informatics | | |
| Technical: | Machine Learning | Data Analysis | Python | Docker |
| | Deep Learning | SQL | Linux | |
| | Natural Language Processing | Cloud Computing | Git | |

## CAREER EXPERIENCE:

*University of Washington Affiliated Hospitals* *2019-present*

Anesthesiology Resident Physician

Research track residency. Primary training hospitals include University of Washington Medical Center, Harborview Medical Center, Seattle Children's Hospital, Veterans Affairs Puget Sound Hospital. Computational research using natural language processing and machine learning on electronic health record data for perioperative risk prediction.

*Google Research (Healthcare AI Team)* *2017-2019*

Healthcare Technology Fellow

Worked with Google Brain & Healthcare AI teams as medical specialist, involved in modeling and labeling activities on project to automate medical documentation creation for reducing physician burnout.

*UCSF @ Biodesign Laboratory (PI: Shuvo Roy)* *2011-2016*

Engineering Project Director & Research Engineer

Lead a $3.5 million project funded by Bill & Melinda Gates Foundation to develop an intravaginal device for pregnant women to detect signs of abnormal cervical ripening and imminent preterm birth before traditional symptom presentation. Designed custom electronics and software. Managed a team of engineers. Pilot clinical study at UCSF and San Francisco General Hospital. Various other medical device projects including measuring forces in orthotic chest brace for treating pectus carinatum & pectus excavatum, smart Bluetooth-enabled orthodontic retainer, pressure-sensing bandage for pressure ulcers.

## PUBLICATIONS

Cheung V, **Chung P**, Feinberg EH. Transcriptional profiling of mouse projection neurons with VECTORseq. STAR Protocols. 2022;3(3):101625. doi:10.1016/j.xpro.2022.101625

Cheung V, **Chung P**, Bjorni M, Shvareva VA, Lopez YC, Feinberg EH. Virally encoded connectivity transgenic overlay RNA sequencing (VECTORseq) defines projection neurons involved in sensorimotor integration. Cell Rep. 2021;37(12):110131. doi:10.1016/j.celrep.2021.110131

Wu J, **Chung P**, Wu EH, Zhang K, Komatsu R. Case Report: Radiographic Identification of Intrapleural Misplacement of Epidural Catheter in an Intubated Post-Lung Transplant Patient. Int Med Case Rep J. 2021;14:823-828. Published 2021 Dec 3. doi:10.2147/IMCRJ.S338755

Castle E, **Chung P,** Behfar MH, et al. Compliance monitoring via a Bluetooth-enabled retainer: A prospective clinical pilot study. Orthod Craniofac Res. 2019;22 Suppl 1:149-153. doi:10.1111/ocr.12263

Phan BAP, **Chung P**. Galloping Heart. N Engl J Med. 2017;376(21):e44. doi:10.1056/NEJMicm1614250

Thatipelli S, Arun A, **Chung P**, Etemadi M, Heller JA, Kwiat D, Imamura-Ching J, Harrison MR, Roy S. Review of existing brace adherence monitoring methods to assess adherence. Journal of Prosthetics and Orthotics: 2016;28(4):126-135. doi: 10.1097/JPO.0000000000000106

Harrison B, Stern L, **Chung P,** et al. MyPectus: First-in-human pilot study of remote compliance monitoring of teens using dynamic compression bracing to correct pectus carinatum. J Pediatr Surg. 2016;51(4):608-611. doi:10.1016/j.jpedsurg.2015.11.007

**Chung P**, Heller JA, Etemadi M, et al. Rapid and low-cost prototyping of medical devices using 3D printed molds for liquid injection molding. J Vis Exp. 2014;(88):e51745. Published 2014 Jun 27. doi:10.3791/51745

Etemadi M, **Chung P**, Heller JA, Liu JA, Rand L, Roy S. Towards BirthAlert–A Clinical Device Intended for Early Preterm Birth Detection. IEEE Trans Biomed Eng. 2013;60(12):3484-3493. doi:10.1109/TBME.2013.2272601

**Chung P**, Rowe A, Etemadi M, Lee H, Roy S. Fabric-based Pressure Sensor Array for Decubitus Ulcer Monitoring. Proceedings of the 35th Annual Conference of the IEEE Engineering in Medicine and Biology Society, July 2013

Etemadi M, **Chung P**, Heller JA, Liu J, Grossman-Kahn R, Rand L, Roy S. Novel Device to Trend Impedance and Fluorescence of the Cervix for Preterm Birth Detection. Proceedings of the 35th Annual Conference of the IEEE Engineering in Medicine and Biology Society, July 2013

## ORAL PRESENTATIONS

**Chung P**, Yetisgen M, O'Reilly-Shah VN. Comparison Of Machine Learning Approaches For Predicting Asa Physical Status Classification From Pre-operative History Of Present Illness Text. American Society of Anesthesiology Annual Meeting, October 2022

**Chung P**, Fong CT, O'Reilly-Shah VN. Natural Language Processing Predicts ASA Physical Status Classification from Pre-operative Note Text. Society of Critical Care Anesthesiologists Annual Meeting, May 2021

**Chung P**, Fong CT, O'Reilly-Shah VN. Natural Language Processing Predicts ASA Physical Status Classification from Pre-operative Note Text. Association of University Anesthesiologists Annual Meeting, May 2021

**Chung P**, Fong CT, O'Reilly-Shah VN. Automated ASA Physical Status Classification Prediction from History of Present Illness. Western Anesthesia Residents Conference, May 2021

## POSTER PRESENTATIONS

**Chung P**, Fong CT, O'Reilly-Shah VN. Natural Language Processing Predicts ASA Physical Status Classification from Pre-operative Note Text. International Anesthesia Research Society, May 2021.

Castle E, **Chung P**, Nelson G, Behfar M, Chen M, Roy S. Improving orthodontic retention compliance using objective wear time data with the SmartByte retainer. 2016 Annual Session of American Association of Orthodontists, May 2016

Kaplan J, Hofer R, Brinson Z, **Chung P**, Lucas C, Teng D, Tang V, Broering J, Chang A, Finlayson E. Early learners as health coaches for high-risk surgical patients: a pilot study. 11th Annual Academic Surgical Congress, February 2016

Teng D, Hofer R, **Chung P**, Lucas C, Broering J, Tang V, Attiga K, Kramer L, Rivas A, Kaplan J, Maselli J, Finalyson E. Get Fit for Surgery: An Interdisciplinary Geriatric Surgery Wellness Program. UCSF 5th Annual Quality & Safety Symposium, May 2015

Oberoi S, **Chung P**. Improving Orthodontic Device Compliance Using Gamified Digital Awards. 41st Annual Moyers Symposium, October 2014

Etemadi M, **Chung P**, Roy S, Rand L. UCSF SMART Diaphragm. GBCHealth Symposium Driving Global Technological Innovations for Maternal, Newborn and Child Health, New York, USA, October 2012 **Chung P**, Wang J, Etemadi M, Roy S. Limen Sensing. GSMA-mHealth Alliance Mobile Health Summit; Cape Town, South Africa, June 2012

Etemadi M, **Chung P**, Liu J, Heller JA, Rand L, Roy S. Smart Diaphragm: A Novel Device to Predict Preterm Labor. 4th Annual A. Richard Newton Global Technology Leaders Conference, Palo Alto, CA, USA, November 2011

## HONORS AND AWARDS

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| UW Anesthesia Academic Evening, Honorable Mention Award | 2022 |
| Kaiser Permanente Medical Student Scholarship, Winner | 2017 |
| Paul and Daisy Soros Fellowship for New Americans, Finalist | 2016 |
| UC Berkeley Venture Labs Competition, Winner | 2011 |
| Andy S. Grove Graduate Fellowship | 2010 |
| UC Berkeley Alumni Leadership Award Scholar | 2009 |
| UC Berkeley Regents' and Chancellor's Scholar | 2006 |

## PROFESSIONAL ORGANIZATIONS

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| American Society of Anesthesiologists | 2017-present |
| American Medical Association | 2014-present |
| Institute of Electrical and Electronics Engineers | 2014-present |
| Tau Beta Pi Engineering Honor Society | 2008-present |
| UC Berkeley Bioengineering Honor Society | 2007-2011 |