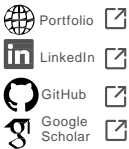


Brian Chang, MD, PhD

Medical Data & AI Scientist | Informatician



A medical doctor turned data scientist and informatician, I have 10+ years of experience in clinical medicine across frontline healthcare delivery, observational research, and development of AI models using real-world clinical data for predictive modeling and patient phenotyping. During my PhD training, I have worked collaboratively with clinicians, biostatisticians, and informaticians across various departments and domains with a proven track record in developing scalable data pipelines, implementing machine learning models, and leading interdisciplinary research projects. Furthermore, I have applied data science and AI methods across disparate health-related data modalities in my research and am passionate about leveraging data to improve healthcare outcomes.

Education

- PhD—Biomedical Informatics | Data Science Specialization**
Sept 2020 – March 2025
University of Washington – Seattle WA
- Master's of Science - Biomedical Informatics**
July 2019 – June 2020
NYU Grossman School of Medicine – New York, NY
- Doctor of Medicine**
Aug 2014 – May 2018
Rutgers New Jersey Medical School – Newark, NJ
- Bachelor of Arts - Biology | Business Minor**
Sept 2010 – Dec 2013
New York University – New York, NY

Awards

- Biomedical Informatics & Data Science Pre-Doctoral Fellowship**
National Library of Medicine T15 Grant | Sep 2020
Full tuition waiver and stipend, ~40 new slots/year
- Top Scholar Top Off Award**
University of Washington | Sep 2020
One-time scholarship to top 2 recruits/year in the BIME program
- Fall 2013 Rudin Internship Scholarship**
New York University College of Arts & Science | Sep 2013
Awarded for internships with substantive academic content

Select Skills & Tools

Artificial Intelligence | Gen AI | Machine Learning (ML) | Data Strategy | Data Quality | Data Mining | Biostatistics | Natural Language Processing | Ontologies | Python | SQL | Git | Docker | Software Engineering Best Practices | MLOps | Unix | Spark | PyTorch | Keras | TensorFlow | Palantir Foundry | Data Visualization | Clinical Medicine | Electronic Health Records | OMOP Common Data Model | Oral & Written Communication

Certifications

- Epix Epicraft for Physicians CLN145
- Physician Builder (Basic) CLN150
- Physician Builder (Analytics) CLN171

Leadership Experience

- University of Washington School of Medicine
Department of Biomedical Informatics and Medical Education
Admissions Committee, Student Member
Oct 2022 – Jan 2023
 - Reviewed applications for PhD and master's prospective candidates
 - Convened with faculty to select candidates to interview
 - Interviewed selected candidates with faculty

Select Work & Medical Research History

Sep 2023 – Present

- Graduate Research Assistant**
University of Washington – Seattle, WA
 - Designed and implemented a scalable pipeline in Palantir Foundry, enabling efficient processing of 100,000+ US residential addresses for health data standardization
 - Adhered to OMOP Common Data Model to ensure cross-study consistency and data compatibility, contributing to dataset interoperability
 - Generated a benchmark dataset from Homeland Infrastructure Foundation-Level Data, facilitating comparative analysis
 - Conducted comprehensive literature reviews on geocoding techniques and standards, providing actionable insights for improved algorithm selection and data linkage

Sep 2020 – Sep 2023

- National Library of Medicine Biomedical Informatics & Data Science Pre-Doctoral Fellow**
University of Washington | Department of Biomedical Informatics & Medical Education – Seattle, WA
 - Developed multimodal models leveraging structured clinical data (EHR/EMR), natural language processing, and imaging analysis to predict vertebral compression fractures
 - Collaboratively developed an automated opportunistic screening pipeline to detect vertebral compression fractures on lateral radiographs of the spine
 - Collaboratively developed ensemble method of segmentation models for above pipeline using both CNN- and ResNet-based architectures
 - Fine-tuned Segment Anything 2 for above pipeline achieving a 20% increase in PPV for fracture detection

Aug 2011 – June 2014

- Neuroscience Research Assistant**
NYU Langone Health Neuroscience Institute – New York, NY
 - Lead engineer in building custom optrodes used to study behavioral aggression in transgenic mice via electrophysiology and optogenetics
 - Conducted stereotaxic surgeries ensuring precise viral delivery of channelrhodopsin, which enabled targeted study of neural circuits in aggression pathways
 - Executed in vivo optrode and electrophysiology recordings, achieving high-resolution neural signal capture critical for identifying aggression-related neural patterns
 - Conducted comprehensive histochemical analysis with perfusion and cryosection, ensuring precise localization of neural markers across 10+ experimental subjects

Aug 2008 – June 2010

- Emergency Medical Technician**
Montville Township First Aid Squad – Montville, NJ
 - Certified EMT-B responding to 911 calls
 - Collaboratively launched the First Aid Squad Cadet program for minors to attain EMT-B certification

Volunteer Activities

- NYU Pre-Medical Peer Mentorship Program**
2016 – 2020
 - Mentored prospective medical school applicants throughout the application process
 - Reviewed and enhanced personal statements and essays, improving applicants' narrative strength and competitiveness in medical school admissions
 - Conducted mock interviews, helping applicants refine responses with feedback indicating improved interview performance

Peer-Reviewed Journal Articles

2024

- **Chang BC**, Renslo J, Dong Q, Johnston SK, Perry J, Haynor DR, et al. Using an Ensemble of Segmentation Methods to Detect Vertebral Bodies on Radiographs. American Journal of Neuroradiology. 2024 Oct 1;45(10):1512–20.
- Cross NM, Perry J, Dong Q, Luo G, Renslo J, **Chang BC**, et al. Subject-level spinal osteoporotic fracture prediction combining deep learning vertebral outputs and limited demographic data. Arch Osteoporos. 2024 Sep 10;19(1):87.

2023

- Dong Q, Luo G, Lane NE, Lui LY, Marshall LM, Johnston SK, Dabbous H, O'Reilly M, Linnau KF, Perry J, **Chang BC**, Renslo J, Haynor D, Jarvik JG, Cross NM. Generalizability of Deep Learning Classification of Spinal Osteoporotic Compression Fractures on Radiographs Using an Adaptation of the Modified-2 Algorithm-Based Qualitative Criteria. Acad Radiol. 2024 Mar 27;31(3):345-353.

2016

- Wong LC, Wang L, D'Amour JA, Yumita T, Chen G, Yamaguchi T, **Chang BC**, Bernstein H, You X, Feng JE, Froemke RC, Lin D. Effective Modulation of Male Aggression through Lateral Septum to Medial Hypothalamus Projection. Curr Biol. 2016 Mar 7;26(5):593-604.

Select Presentations

2023

- Ensembling segmentation methods to detect vertebral bodies on radiographs | Conference Presentation | National Library of Medicine (NLM) T15 Training Conference | 2023
- Ensembling segmentation methods to detect vertebral bodies on radiographs | Seminar Presentation | Institute of Medical Data Science, University of Washington School of Medicine | 2023