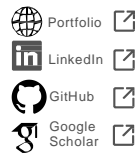


# Brian Chang, MD

## 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 – Present  
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 | Data Strategy |  
Data Quality | Data Mining | Biostatistics | Natural Language Processing  
|Ontologies | Python | SQL | Git | Docker | Software Engineering Best  
Practices | MLOps | Unix | PySpark | PyTorch | Keras | TensorFlow |  
Palantir Foundry | Data Visualization | Clinical Medicine | Electronic Health  
Records | OMOP Common Data Model

### Certifications

- Epic
- Notecraft 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), unstructured documentation, 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

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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

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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