Brian Chang, MD

Medical Data & AI Scientist | Informatician

Portfolio
LinkedIn
GitHub
Google Scholar

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 diagnosis and screening. During my PhD training, I have worked collaboratively with clinicians, biostatisticians, and informaticians across various departments and domains. Furthermore, I have applied data science and AI methods across disparate health-related data modalities in my research.

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 2017
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 | Software Engineering Best Practices | Unix | PySpark | PyTorch | Keras | TensorFlow | Palantir Foundry | Data Visualization | Clinical Medicine | Electronic Health Records |

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
- Developed pipeline for processing US residential addresses from *All of Us* in Palantir Foundry
- Created a public reference dataset from Homeland Infrastructure Foundation-Level Data to assess geocoder performance
- Performed literature reviews on geocoding algorithms, metrics, methodology, data standards, 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
- 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
- Fine-tuned foundation models for segmentation for above pipeline
- Assisted in migration of legacy PACS data and retiring a data lake at UW Medicine

Aug 2011 – Jan 2014

Neuroscience Research Assistant
NYU Smilow Center for Neuroscience – New York, NY
- Lead engineer in building custom optrodes used to study behavioral aggression in transgenic mice via electrophysiology and optogenetics
- Performed stereotaxic surgery to inject adeno-associated virus with channelrhodopsin in mice brain regions
- Performed in vivo optrode and electrophysiology recordings
- Performed histochemical analysis involving fixation of mice brain by perfusion and cryosection

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 edited personal statements and supplementary essays
- Performed mock interviews with applicants

Peer-Reviewed Journal Articles

2024

- 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.
- **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.

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