Delgersuren Bold, MSc

FULL-STACK DEVELOPER / CLOUD ARCHITECT

Dedicated and innovative professional with extensive experience in full-stack development, data engineering, and cloud solutions architecture. Proficient in a range of programming languages and technologies with a significant background in signal processing, clinical image processing, NLP, large language model prompting data visualization, advancing medical research and patient care through system development. Adept in agile development processes and comfortable leading cross-functional teams to deliver innovative solutions.

EXPERIENCE

SR. RESEARCH DATA/INFORMATICS SPECIALIST
EMORY HEALTH, DEPT. OF NURSING
Feb 2022 - Present

Full-stack development, Cloud/Solutions architecture, Project management, Data engineering, EPIC Analyst, Physiological Signal processing, Clinical image processing, NLP, and LLM

RESEARCH SPECIALIST/ANALYST PROGRAMMER II
DUKE HEALTH, DEPT. OF NURSING
Jul 2021 - Feb 2022

Full-stack development, Cloud infrastructure architecture, Signal processing, Data analysis

RESEARCH SPECIALIST
UCSF MEDICAL CENTER, DEPT. OF NEUROLOGY
Jan 2020 - Jun 2021

Full-stack web application development, Clinical database, and management

FULL STACK ENGINEER
UCSF MEDICAL CENTER, DEPT. OF PHYSIOLOGICAL NURSING
May 2016 - Dec 2020

UI design, API implementation, Signal processing, Project development and deployment

For more experiences, please visit my LinkedIn profile.

CERTIFICATION/ACHIEVEMENTS

- Certified Business Intelligence Developer, Epic Data Model, 2022
- The SPOT Award, 2018 | STAR Program
- The SPOT Award, 2017 | STAR Program
- Finalist, The Next Great Data Developer - Cassandra Summit, 2013

DETAILS

Atlanta, GA
(415) 812-6686
delgersuren.bold@gmail.com
linkedin@delgersurenbold

EDUCATION

Master of Comp. Sci, SFSU
Bachelor of Comp. Sci, SFSU

SKILLS

Languages & Framework:

ReactJS, TypeScriptJS, Material-UI, CSS, HTML, Jinja, CanvasJS, JavaScript, Python, Objective-C, Java, Django, C/C++, R, MATLAB, PHP, React-Native, CoreML and Swift

Cloud & DevOps:

GCP, AWS, Microsoft Azure, IBM Cloud, Jenkins, Docker, Nginx, and Terraform.

Wearables:

Apple iWatch, Samsung Watch, Empatica E4, Fitbit, Corsona, Preventice

Back-End and Database:

NodeJS, HapiJS, ExpressJS, SequelizeJS, Flask, MongoDB, MySQL, SQL, NoSQL, JSON, XML, Hadoop, DICOMWeb, Redis, PM2, Kafka, ChromaDB DicomWeb and Django.

RESEARCH AWARD

NIH R50 – Research Specialist Award - 1R50LM014943-01
CADA+ (Enhanced Cohort Adjudication Data Annotation)
Sep. 2025 – Aug. 2028
Budget: **$470,000**

https://reporter.nih.gov/search/project-details/11240703

PROJECTS

CHORUS BRIGDE2AI NIH INITIATIVE - INTEGRATED VIEWER (IVE)
FULL STACK DEVELOPER/CLOUD SOLUTION ARCHITECT.
Oct. 2022 - Present

- Developed IVe, a web-based tool for visualizing and exploring CHoRUS dataset at individual patient levels.
- Facilitated AI/ML experiments through data management, visualization, and reproducibility features.
- Utilized React, NodeJs, ExpressJs, SQLite, Postgres, AWS, Azure, Material UI, MetaMap, Python, Jenkins, PM2, Docker, and Nginx.

For more information https://github.com/chorus-ai/IVe

CHORUS BRIGDE2AI NIH INITIATIVE - COHORT ADJUDICATION/DATA ANNOTATION (CADA)
FULL STACK DEVELOPER/CLOUD SOLUTION ARCHITECT
Oct. 2022 - Present

- Developed CADA, a tool for collaborative data analysis, annotation, and adjudication in OMOP-standardized datasets as well as raw clinical notes, waveform and DICOM images, to collect ML training and testing data.
- Supported cohort adjudication and data annotation tasks through ML models in automated fashion to advance ML research and development process.
- Utilized ReactJs, ExpressJs, BullMq, Redis, NodeJs, Postgres, AWS, Azure, Material UI, MetaMap, Python, Jenkins, PM2, Docker, and Nginx.

For more information https://github.com/chorus-ai/CADA

LARGE LANGUAGE MODEL EVALUATION – MICROSOFT SCHOLARSHIP
FULL STACK DEVELOPER/DATA ENGINEER
NOV. 2023 – Present

- Testing various de-identification model on Emory clinical notes and Cancer pdf materials
- Extract clinical concepts from the notes and domain expert to annotate.
- Utilized Python, Microsoft Presidio, i2b2 NER, CADA tool

Local IRB: STUDY00006871

MONAH STUDY- MUTISITE, ACUTE HYDROCEPHALUS MANAGEMENT
DATA ENGINEER
Oct. 2023 – Present

- Working with REDCAP to collect data as well as EHR data to predict shunting.
- IT Risk security assessment on Flywheel and Image de-identification
- Utilized REDCAP, Python and Flywheel platform.

Local IRB: STUDY00006612

PROJECTS

WEB BASED DYADIC INVERVATION – CRC TOOL
FULL STACK DEVELOPER/DATA ENGINEER
NOV. 2023 – Present

- Developed Mobile Application for Cancer patient's caretaker to collect data and give feedback on training.
- Developing CRC Tool, web application, to manage the patient login and data collection and assignments.
- Utilized JavaScript, Python, GPT models, Restful API.

Local IRB: STUDY00004750

EDUCATE STUDY- EARLY DISGNOSIS OF COGNITIVE IMPAIRMENT
DATA ENGINEER
Oct. 2023 – Present

- Work with honest broker to prepare data from electronic health record for Machine learning model building.
- Utilized SQL and Python.

Local IRB: STUDY00005199

CARDIORESPIRATORY VARIABILITY AND SYNCHRONIZATION
DATA ENGINEER
Oct. 2022 – Present

- Working on Emory Hospital BedMaster bed side monitors archive to map patients' high-resolution waveform with bed stay history.
- Data harmonization
- Utilized Linux Cluster, SQL, and Python.

Local IRB: IRB00026478

EMORY ENTERPRISE OMOP INTEGRATION
DATA ENGINEER
Aug. 2023 – Present

- Working with Emory IT Data Solution team and John Hopkins University to build OMOP note and note_nlp table on Emory clinical notes from Cerner system.
- Utilized Python, SQL, AWS Redshift, Microsoft Presidio, i2b2 NER

DCI STUDY - MULTISITE, EXTERNAL IRB
DATA ENGINEER
Feb. 2023 – Present

- Help extract the clinical waveform from archive and transform the waveform in Python.
- EHR data to create an algorithm for the early detection of delayed cerebral ischemia post-aneurysmal subarachnoid hemorrhage.

NOVEL STUDY - MULTISITE, EXTERNAL IRB
DATA ENGINEER/TECH SUPPORT
July 2021 – Present

- Engineered various scripts to process raw waveforms coming from bed side system for intracranial pressure downstream assessment to build prediction ML model.
- Utilized Python and MATLAB

NLP CLINICAL NOTES ANNOTATION TOOL

PROJECTS

FULL STACK DEVELOPER
July 2022 - Present

- Developed a multi-user web application for evaluating various GPT model on clinical notes concept extraction, collecting training data for fine-tune large language model training.
- Utilized ReactJs, ExpressJs, NodeJs, SQLite, AWS, Material UI, MetaMap, Python, Jenkins, PM2, Docker, Python, GPT4, GPT3.5 and Llama.

EVENTANNOTATOR
FULLSTACK DEVELOPER
Feb. 2018 - 2022

- Designed a multi-user platform for annotating clinical events to train machine learning models.
- Utilized ReactJs, HapiJs, NodeJs, CanvasJs, Google Cloud and AWS.

REALTIME PPG SIGNAL PROCESSING WITH COREML
IOS DEVELOPER
Aug. 2021 – 2022

- Developed an iOS app for real-time PPG signal processing, utilizing the CoreML framework for machine learning.

STROKE MANAGEMENT TOOL
FULLSTACK DEVELOPER
Feb. 2020 - 2021

- Created an outpatient management platform integrated with a mobile app for stroke patient data management for clinicians to prevent patient from recurrent stroke by managing their weight, blood pressure, sleep, and depression assessments.
- Utilized ReactJS, HapiJs, NodeJs, CanvasJs, Postgres SQL, Google Cloud and on-premise VM.

PULSATILE TINNITUS CLINIC TOOL
FULLSTACK DEVELOPER
May 2020 - 2021

- Built a web application for patient management in pulsatile tinnitus clinics, with a focus on data collection in pre-clinic, in-clinic, and post clinic fashion. Project included, patient scheduling, history building and image collection from Radiology.
- Utilized ReactJs, HapiJs, NodeJs, CanvasJs, SQL, Material UI and on-premise VM.

SUPERALARM
BACKEND DEVELOPER/UI DEVELOPER
Dec. 2016 - 2019

- Built an AI-based early warning system to detect and alert medical staff of patient deterioration.
- Utilized Nginx, PM2, Kafka, Kue, ReactJS, HapiJs, NodeJS, CanvasJs, Python, MATLAB, Redis

ALARMEXPERT
API DEVELOPER/UI DEVELOPER

Sep. 2016 - 2018

- Developed a real-time alarms and vitals visualization web portal for ICU settings to manage alarm fatigues issues and to make assessment for ICU workload with audible alarms.
- Utilized ReactJs, HapiJs, NodeJs, Semantic UI and on-premise VM.

PUBLICAITONS

Leveraging Artificial Intelligence for Digital Symptom Management in Oncology: The Development of CRCWeb.
JMIR cancer 11 (1), e68516. doi: 10.2196/68516. PMID: 40324958 PMCID: 12185034
Liu D, Lin Y, Yan R, Wang Z, Bold D, Hu X

https://cancer.jmir.org/2025/1/e68516/

Large Language Model Empowered Privacy-Protected Framework for PHI Annotation in Clinical Note - arXiv preprint arXiv:2504.18569, 2025
G Wu, L Zheng, H Xie, Z Xiang, J Lu, D Liu, D Bold, B Li…

https://arxiv.org/abs/2504.18569

Evaluation of large language models in tailoring educational content for cancer survivors and their caregivers: quality analysis. JMIR Cancer 2025;11:e67914 doi: 10.2196/67914. PMID: 40192716. PMCID: 11995809
Liu D, Hu X, Xiao C, Bai J, Barandouzi ZA, Lee S, Webster C, Brock LU, Lee L, Bold D, Lin Y

https://cancer.jmir.org/2025/1/e67914

Early Risk Prediction of Pediatric Cardiac Arrest from Electronic Health Records via Multimodal Fused Transformer
Jiaying Lu, Stephanie R. Brown, Songyuan Liu, Shifan Zhao, Kejun Dong, Delgersuren Bold, Michael Fundora, Alaa Aljiffry, Alex Fedorov, Jocelyn Grunwell, Xiao Hu

https://arxiv.org/abs/2502.07158

1444: USING MACHINE LEARNING TO PREDICT CARDIAC ARREST IN THE PEDIATRIC CARDIAC INTENSIVE CARE UNIT Critical Care Medicine 53(1):, January 2025. | DOI: 10.1097/01.ccm.0001104440.79174.4f
Stephanie Brown, Jocelyn Grunwell, Yuhua Wu, Kejun Dong, Del Bold, Darren Liu, Michael Fundora, Xiao Hu, Jiaying Lu

https://journals.lww.com/ccmjournal/citation/2025/01001/1444__using_machine_learning_to_predict_cardiac.1397.aspx

1529: CARDIAC ARREST PREDICTION IN THE PEDIATRIC CICU: A FINE-TUNED LANGUAGE MODEL APPROACH
Lu, Jiaying; Brown, Stephanie; Dong, Kejun; Bold, Del; Fundora, Michael; Grunwell, Jocelyn; Hu, Xiao

https://journals.lww.com/ccmjournal/citation/2025/01001/1529__cardiac_arrest_prediction_in_the_pediatric.1482.aspx

Uncovering Sex Bias in Machine Learning Algorithms for Detecting Acute Myocardial Infarction using Electrocardiographic Data
Yasoda Sai Ram Kandikonda, Master, Abhinav Goyal, MD, MHSc, Jessica Zegre-Hemsey, RN, PhD, Lekshmi Kumar, MD, David Wright, MD, Marly Van Assen, PhD MD, Judy Wawira, MD, MS, Sukardi Suba, PhD, RN, Mary

Carey, PhD RN, delgersuren bold, Master, Cheng Ding, PhD candidate, Alex Fedorov, BS, MS, PhD, Jiaying Lu, PhD, Runze Yan, PhD, Xiao Hu, PhD, and Ran Xiao, PhD

https://www.ahajournals.org/doi/abs/10.1161/circ.150.suppl_1.4141659

Development of a Technology-Based Dyadic Intervention for Underserved Colorectal Cancer Patients and Caregivers. Stud Health Technol Inform. 2024 Jul 24;315:721-722. doi: 10.3233/SHTI240297.
Lin Y, Xiao C, Porter LS, Alese OB, Higgins MK, Liu DS, Bold D, Hu X.

PubMed PMID: 39049398

Extracting predictive rules from time series of model outputs of continuous clinical predictive models. Journal of Electrocardiology 84 (2024): 31-32.
Xiao, Ran, Matthew T. Clark, Delgersuren Bold, Nirbhay Modhe, Timothy Ruchti, and Xiao Hu.

https://www.semanticscholar.org/paper/Extracting-predictive-rules-from-time-series-of-of-Xiao-Clark/7f1fa3e15fe8f8c16f15c416cf83fb9613490f3d

Systematic Evaluation of General Large Language Models for Contextually Assessed Semantic Concepts From Unstructured Critical Care Data
JH Yoon, D Liu, D Bold, J Lu, R Xiao, C Ding, C Yang, G Clermont, X Hu

https://www.atsjournals.org/doi/pdf/10.1164/ajrccm-conference.2024.209.1_MeetingAbstracts.A5060

Evaluation of Large Language Models in Tailoring Educational Content for Cancer Survivors and Their Caregivers: Quality Analysis
JMIR Cancer 2025;11:e67914. doi: 10.2196/67914. PMID: 40192716 PMCID: 11995809
Liu D, Hu X, Xiao C, Bai J, Barandouzi ZA, Lee S, Webster C, Brock LU, Lee L, Bold D, Lin Y

https://cancer.jmir.org/2025/1/e67914

Digital Health Innovations to Promote Physical Activities in Patients with Cancer. Stud Health Technol Inform. 2024 Jul 24;315:608-609. doi: 10.3233/SHTI240239.
Albrecht T, Chen Y, Allen D, Pastva A, Tian Z, Lin Y, Bold D, Hu X, Xiao R.

PubMed PMID: 39049345

Evaluation of General Large Language Models in Contextually Assessing Semantic Concepts Extracted from Adult Critical Care Electronic Health Record Notes
Darren Liu, Cheng Ding, Delgersuren Bold, Monique Bouvier, Jiaying Lu, Benjamin Shickel, Craig S. Jabaley, Wenhui Zhang, Soojin Park, Michael J. Young, Mark S. Wainwright, Gilles Clermont, Parisa Rashidi, Eric S. Rosenthal, Laurie Dimisko, Ran Xiao, Joo Heung Yoon, Carl Yang, Xiao Hu

https://arxiv.org/abs/2401.13588

CONFERENCES

2025 IEEE EMBS INTERNATIONAL CONFERENCE ON BIOMEDICAL AND HEALTH INFORMATICS (BHI)
Enabling Scalable Live Alarm Analytics: AlarmX
Delgersuren Bold, Darren Liu, Brian Tu, Mohamed Elmahdy, Justin Long, Michael P. Fundora, Mark Mai, Naveen Muthu, Timothy Ruchti, Xiao Hu

2025 AMERICAN MEDICAL INFORMATICS ASSOCIATION - ANNUAL SYMPOSIUM (AMIA)
Better domain insight, better learning: unlocking the potential of ecg foundation models with paired cardiologist reports
Lovely. Y , Zeyuan. M, Saurabh. K, Brain. G, Tom Joseph. P, Delgersuren. B, Jessica. Z, Dillon D, Sherin T, Chi-Ju L, L'Juan H, David W. W, Lekshmi. K, Xiao. H, Ran. X. Emory University, Massachusetts Institute of Technology, University of North Carolina at Chapel Hill, University of Rochester,

2025 AMERICAN MEDICAL INFORMATICS ASSOCIATION - ANNUAL SYMPOSIUM (AMIA)
Enabling Scalable Predictive Monitoring and Alarm Analytics via a Live Platform for Processing Continuous Cardiorespiratory Monitoring Data
Delgersuren Bold, Darren Liu, Abel Lin, Mohamed Elmahdy, Justin Long, Michael P. Fundora, Mark Mai, Timothy Ruchti, Naveen Muthu

2025 BRIDGE2AI ALL HANDS CONFERENCE AND OPEN HOUSE
Session 2: tracking data release - Speaker
AI/ML for Clinical Care (CHoRUS)
May 22, 2025 9:35 - 10:25

2025 BRIDGE2AI ALL HANDS CONFERENCE AND OPEN HOUSE
Empowering Customized Data Annotation: Dynamic forms
Delgersuren Bold, Darren Liu, Runze Yan, Eric S. Rosenthal, Xiao Hu

2024 BRIDGE2AI ALL HANDS CONFERENCE AND OPEN HOUSE
Bridge2AI for Clinical Care: Developing a standardized format for waveforms
Brian Gow, Tom Pollard, Benjamin Moody, Will Ashe, Tony Pan, Delgersuren Bold, Manlik Kwong, Alasdair Gent, Andrew Williams, Eric S. Rosenthal, Jared Houghtaling, Rajesh Ganta, Randall Moorman, Rishikesan Kamaleswaran, Soojin Park, Gilles Clermont, Ciera McCrary, Murad Megjhani, Qiao Li, Tilendra Choudhary, Saurabh Kataria, Yungui Huang, Morteza Zabihi, Xiao Hu https://zenodo.org/records/13769736

2024 BRIDGE2AI ALL HANDS CONFERENCE AND OPEN HOUSE
Evaluation of General LLMs in Understanding Clinical Concepts Extracted from Adult Critical Care EHR Notes
Darren Liu, Cheng Ding, Delgersuren Bold, Monique Bouvier, Jiaying Lu, Benjamin Shickel, Craig S. Jabaley, Wenhui Zhang, Soojin Park, Michael J. Young, Mark S. Wainwright, Gilles Clermont, Parisa Rashidi, Eric S. Rosenthal, Laurie Dimisko, Ran Xiao, Joo Heung Yoon, Carl Yang, Xiao Hu

2024 BRIDGE2AI ALL HANDS CONFERENCE AND OPEN HOUSE
Scalable deployment of the OHDSI tool stack and associated analytic environments to support research on multimodal data within the B2AI Collaborative Cloud
Jared Houghtaling, Jon Hamill, Heidi Schmidt, Delgersuren Bold, Rishi Kamaleswaran, Kyrylo Simonov, Andrew E Williams, Eric Rosenthal

2023 IEEE EMBS INTERNATIONAL CONFERENCE ON BIOMEDICAL AND HEALTH INFORMATICS (BHI)
Using Large Language Models to Tag Clinical Concepts Extracted from Nursing Notes
Delgersuren Bold, Darren Liu, Monique Bouvier, Cheng Ding and Xiao Hu, *Senior Member, IEEE*

2023 IEEE EMBS INTERNATIONAL CONFERENCE ON BIOMEDICAL AND HEALTH INFORMATICS (BHI)
Characterizing trending features in time-series prediction of clinical event onset
Ran Xiao, Member, IEEE, Matthew T Clark, Nirbhay Modhe, Cheng Ding, Delgersuren Bold, Timothy Ruchti, and Xiao Hu, Senior Member, IEEE

LECTURES/TEACHING

Guest Lecturer, **NSRG 794: Health Information. Technology for Women's Health** (Dr. Sharon Sonenblum), October 7, 2025
Delivered a 60-minute session on Prompt Engineering Techniques; invited by course instructor.

Instructor, **AIM-AHEAD / Clinical Care Training Program** – *Researcher Cloud Orientation, December 16, 2025*
Delivered a 60-minute cloud orientation session covering environment access, available resources, computational setup, and recommended workflows for researchers in the Clinical Care Training Program.
https://www.aim-ahead.net/programs/aim-ahead-bridge2ai-for-clinical-care-training-program/

Instructor, **AIM-AHEAD / Clinical Care Training Program** – *EHR and OMOP Cloud Access Office Hour, January 6, 2026*
Led a 60-minute office-hour session on accessing EHR and OMOP data in the cloud environment, providing hands-on support, troubleshooting, and guidance for researchers in the Clinical Care Training Program.
https://www.aim-ahead.net/programs/aim-ahead-bridge2ai-for-clinical-care-training-program/

MANUSCRIPT REVIEWS

PLOS Digital Health — *Manuscript Reviewer,* **PDIG-D-25-00602** *(2025).*
"Social determinants of e-health literacy: a mixed-methods study among members and representatives of patient organizations."
Provided evaluation of methodological rigor, clarity of e-health literacy measurement, statistical appropriateness, data availability compliance, and generalizability. Recommended improvements to terminology consistency, data-sharing policy adherence, and distinction between digital skills vs. validated e-HL constructs.

PLOS Digital Health — *Manuscript Reviewer,* **PDIG-D-25-00934** *(2025).*
"A Retrospective Study of Smart Spot, a Bluetooth Low-Energy Real-Time Location System Supporting Quality Improvement Efforts in Uganda."
Assessed methodological soundness, RTLS data-cleaning algorithm transparency, statistical analysis, and clarity of reporting. Provided guidance on algorithm description (flowchart/pseudocode), justification of analytical thresholds, confounder discussion, scalability, and integration considerations.

ADVISORY BOARDS & PROFESSIONAL SERVICE

Advisory Board Member, *Goizueta Institute Data Platform – Imaging Working Group*, Emory University (2025–Present)

- Advise on technical direction, platform architecture, data quality processes, and multimodal imaging workflows.
- Provide use cases and requirements for design; support curation, ingest priorities, compute planning, and data-access models.
- Beta-test modules and guide sustainability planning.

Application Engineer & Clinical Data Mapping Consultant, *Emory OMOP Enterprise OIT* (2024–Present)

- Support enterprise OMOP mapping, data integration strategy, and technical implementation guidance.

Working Group Member, *EMORY HEALTHCARE Digital Operations – Waveform Real-time Streaming* (2024–Present)

- Lead technical direction for real-time waveform ingestion and processing across ~1800 beds across 8 hospitals; contribute to Terraform-based deployment and quality-assurance workflows with AWS CloudWatch, Kinesis.

Last updated Dec. 2025