

# AI for Healthcare and Biomedicine

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Healthcare and biomedical research require AI technologies to analyze large volumes of multimodal data in order to create predictive models of health and disease as well as technologies that enhance the interaction between healthcare providers and patients. Through a partnership between the Departments of Energy and Veterans Affairs, the Berkeley Lab and other DOE labs are developing technologies to predict high risk for suicide and overdose, cardiovascular disease, and response to treatments, among others. We use electronic health records and genomic data to analyze the predictive and protective factors involved. Also, we are working on the integration of other factors that affect outcomes such as social and environmental determinants of health. We believe the latter will not only inform physicians and healthcare providers but also policy makers who need to quickly make decisions and allocate resources. In this seminar I will focus on 2 main areas that my group has been working on: developing Natural Language Processing (NLP) techniques to extract dramatic life events from medical notes. These events, like housing and job instability, social isolation and troubles with the law, are poorly diagnosed in the medical records but healthcare providers' notes are rich in information. We are also developing geospatial models to develop indexes of environmental and socio-economic vulnerability based on temperature, air quality, poverty, unemployment, crime, and many more datasets. I will highlight the potential and limitations of AI in these growing fields as well as the areas where more work is needed.

**Friday, ~~March 22~~ April 19, 2024, 11:00 AM**

**Please pre-register for the Zoom meeting at**

[https://us06web.zoom.us/meeting/register/tZwvfUgoQDMsHtNezs8XpFvUab8PbCA\\_De1S](https://us06web.zoom.us/meeting/register/tZwvfUgoQDMsHtNezs8XpFvUab8PbCA_De1S)

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