# Bernal Jiménez Gutiérrez

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## RESEARCH INTERESTS

My research intersts lie in the intersection between **biology** and **AI**. On the one hand, I am passionate about how AI systems can accelerate biomedical research and directly improve people's lives. On the other hand, neurobiology is extremely inspiring to me and I strongly believe that human brain insights will help us overcome some of the current limitations in AI systems such as failures in reasoning, knowledge retrieval and continual learning.

## EDUCATION

**The Ohio State University** — Ohio, USA
Ph.D. in Computer Science and Engineering — Aug 2019 - May 2025 (Expected)
Advisor: Yu Su

**University of California at Berkeley** — Berkeley, CA
B.A. in Applied Mathematics (Probability Theory Concentration) — Aug 2011 - December 2015
Minor in Physics

## RESEARCH EXPERIENCE

**National Library of Medicine** — Bethesda, MD
Research Intern; PI: Olivier Bodenreider — May 2022 - August 2022

**Mendel AI** — San Jose, CA
AI Researcher Developer; Manager: Wael Salloum — June 2016 - June 2019

**Redwood Center for Theoretical Neuroscience, UC Berkeley** — Berkeley, CA
Research Assistant; PI: Michael DeWeese — July 2014 - March 2016

**Language and Cognition Lab, UC Berkeley** — Berkeley, CA
Research Assistant; PI: Terry Regier — August 2013 - December 2013

## SELECTED PUBLICATIONS

Google Scholar

1. **HippoRAG: Neurobiologically Inspired Long-Term Memory for Large Language Models**
   Bernal Jiménez Gutiérrez, Yiheng Shu, Yu Gu, Michihiro Yasunaga, Yu Su
   Under Review, May 2024.
2. **Solving the Right Problem is Key for Translational NLP: A Case Study in UMLS Vocabulary Insertion**
   Bernal Jiménez Gutiérrez, Yuqing Mao, Vinh Nguyen, Kin Wah Fung, Yu Su, Olivier Bodenreider
   Findings in EMNLP 2023, December 2023.
3. **Biomedical Language Models are Robust to Sub-optimal Tokenization**
   Bernal Jiménez Gutiérrez, Huan Sun, Yu Su
   BioNLP Workshop @ ACL 2023, July 2023.
4. **Aligning Instruction Tasks Unlocks Large Language Models as Zero-Shot Relation Extractors**
   Kai Zhang, Bernal Jiménez Gutiérrez, and Yu Su
   Findings of ACL, July 2023.
5. **Thinking about GPT-3 In-Context Learning for Biomedical IE? Think Again**
   Bernal Jiménez Gutiérrez, Nikolas McNeal, Clay Washington, You Chen, Lang Li, Huan Sun, Yu Su
   Findings in EMNLP 2022, December 2022.

6. **Clinical Phrase Mining with Language Models**
   Kaushik Mani, Xiang Yue, Bernal Jiménez Gutiérrez, Yungui Huang, Simon M. Lin, Huan Sun
   2020 IEEE International Conference on Bioinformatics and Biomedicine (BIBM), December 2020.
7. **Document Classification for COVID-19 Literature**
   Bernal Jiménez Gutiérrez, Juncheng Zeng, Dongdong Zhang, Ping Zhang, Yu Su
   Findings in EMNLP 2020, November 2020.
8. **Clinical Reading Comprehension: A Thorough Analysis of the emrQA Dataset**
   Xiang Yue, Bernal Jiménez Gutiérrez, Huan Sun
   ACL 2020, July 2020.
9. **Improving Clinical Trial Participant Pre-Screening with Artificial Intelligence (AI): a Comparison of the Results of AI-Assisted vs. Standard Methods in Three Oncology Trials**
   Denise Calaprice-Whitty, Karim Galil, Wael Salloum, Ashkon Zariv, Bernal Jiménez Gutiérrez
   TIRS (Therapeutic Innovation and Regulatory Science), January 2020.

## GRANTS

**NIH R01: Machine Learning Drives Translational Drug Interaction and Pharmacogenetics Research**
Role: Personnel (Contributed to framing & writing).
Grant: $3,118,680. 2023-2027.
Impact Score from Review Panel: 10, top 1%

**OSU TDAI Research Pilot Grant: Practical and Comprehensive Social Media Pharmacovigilance**
Role: Personnel (Contributed to framing & writing).
Grant: $50,000. 2021-2022.

## SERVICES

**PC Member/ External Reviewer**:
EACL 2021
KDD 2021, 2022
EMNLP 2020, 2021, 2022
ACL 2021, 2023
AAAI 2024
ARR 2024

**Area Chair**:
ARR June 2024

## UNREFEREED PUBLICATIONS

**Learning sparse representations of visual stimuli from natural movies**
Bernal Jiménez Gutiérrez, Jesse Livezey, Michael DeWeese
Computational and Systems Neuroscience (COSYNE) 2016, February 2016.