

Hongdi Pei

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Education

Johns Hopkins University

Aug 2024 - Now

Major: Biomedical Engineering

Degree: Master of Science

GPA: 3.96

Sichuan University

Sept 2020 - Jun 2024

Major: Biomedical Engineering

Degree: Bachelor of Engineering

GPA: 3.74 Compulsory GPA: 3.79

Publications & Citation Metrics

6 peer-reviewed publications, with a total of 46 citations (as of July 2025)

Profile: <https://www.researchgate.net/scientific-contributions/Hongdi-Pei-2244985598>

Pei H, Li J(iayu), Ma S, et al. Identification of Thermophilic Proteins Based on Sequence-Based Bidirectional Representations from Transformer-Embedding Features. *Applied Sciences*, 2023. (First Author; Cited 25 times)

Lyu Z, Wei M, **Pei H**, et al. PTSP-BERT: Predict the thermal stability of proteins using sequence-based bidirectional representations from transformer-embedded features. *Computers in Biology and Medicine*, 2024. (Personally drafted manuscript; 2023 IF: 7.7)

Jiang J, **Pei H**, Li J(iayu), et al. FEOpti-ACVP: identification of novel anti-coronavirus peptide sequences based on feature engineering and optimization. *Briefings in Bioinformatics*, 2024. (2023 IF 6.8)

Li J(iayu), Ma S, **Pei H**, et al. Review of T cell proliferation regulatory factors in treatment and prognostic prediction for solid tumors. *Heliyon*, 2023.

Li J, Jiang J, **Pei H**, Lyu Z. A Stacking Machine Learning Method for IL-10-Induced Peptide Sequence Recognition Based on Unified Deep Representation Learning. *Applied Science*, 2023.

Jiang J, Li J(iayu), Li J(unxian), **Pei H**, et al. A Machine Learning Method to Identify Umami Peptide Sequences by Using Multiplicative LSTM Embedded Features. *Foods*, 2023.

Research Experience

Graduate Researcher – Johns Hopkins Schizophrenia Center

Aug 2024 - Now

Area: Neuroimaging | Advisor: Dr. Akira Sawa, Dr. Laurent Younes, Dr. Kun Yang

- Participated in a multi-cohort subcortical volume analysis covering six stages of psychotic disease progression: Healthy Controls → Transient PLEs → Persistent PLEs → Early Psychosis → Chronic Schizophrenia → Treatment-Resistant Schizophrenia.
 - 2025 May– Annual Research Potpourri, Johns Hopkins School of Medicine | Oral Presentation.
 - 2025 May – Precision Medicine Symposium, Johns Hopkins School of Medicine | Poster Presentation.
 - Gained experience with large-scale, multi-site datasets and cross-sectional neurodevelopmental inference.
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Research Assistant – Lv Lab, Sichuan University

Oct 2020 - Jun 2024

Area: Deep learning & bioinformatics | **Advisor:** Dr. Zhibin Lv

- Applied deep representation learning (BERT, UniRep, W2V, SSA), classical ML (SVM, RF, LGBM), and oversampling techniques (SMOTE) to develop predictive models for protein sequence classification.
 - Gained deep experience in ML pipeline development, transformer fine-tuning, high-dimensional feature extraction, and manuscript preparation.
 - Contributed to 6 peer-reviewed publications (1 as first author, 1 as primary writer, 4 as co-author) under Prof. Zhibin Lv's supervision, covering topics such as thermophilic protein prediction, umami peptide identification, and cytokine peptide modeling.
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Team Leader – Dry lab SCU-China iGEM 2023

Dec 2022 - Sept 2023

Area: Synthetic Biology, Computational Modeling | **Advisor:** Dr. Nianhui Zhang

- Built the multi-layer mathematical models (gene–cell–application) for engineered E. coli targeting sulfate-reducing bacteria in urban sewage.
- Project awarded Gold Medal and nominated Best Environment Project by iGEM 2023.

Honors and Awards

- 2022 First Prize in Mathematical Modeling National Competition, Sichuan Province
- 2022 Meritorious Winner in Mathematical Contest In Modeling (MCM)
- 2023 Gold Medal and Best Environment Project Nomination in International Genetically Engineered Machine
- 2022 Bronze Medal in International Genetically Engineered Machine
- Third Prize of 2021 Asia and Pacific Mathematical Contest in Modeling