Hongdi Pei

+1-4437623555
hpei2@jh.edu

Education

Johns Hopkins University Aug 2024 – Aug 2025
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/profile/Hongdi-Pei

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.

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.

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