Beilong Tang

Email: bt132@duke.edu · **Google Scholar**: Beilong Tang - Google Scholar

EDUCATION

Duke Kunshan University (DKU) & Duke University Dual Degree   Class of 2025
B.S. in Computer Science (DKU)   Kunshan, China
B.S. in Interdisciplinary Studies; Applied Math & Computational Science; Computer Science (Duke)   Durham, U.S.

- GPA: 3.858/4.0
- Notable Courses:
  - COMPSCI 309 Elements of Machine Learning – A
  - COMPSCI 311 Computer Network Architecture – A+
  - COMPSCI 402 Artificial Intelligence – A
  - STATS 303 Statistical Machine Learning – A-
  - MATH 302 Numerical Analysis – A+
  - (Duke) COMPSCI 308 Advanced Software Design and Implementation – A
  - (Graduate Course at Duke) ECE 689 Advanced Topics in Deep Learning – A+
  - (Graduate Course at Duke) ECE 572 Introduction to Natural Language Processing – A

RESEARCH INTEREST

Deep Learning, Signal processing, Speech separation and enhancement, Natural Language Processing, IoT, Federated Learning, Edge computing, AI System

RESEARCH EXPERIENCE

Research Assistant for Speech Separation and Enhancement   May 2024 – Present
The SMIIP Lab at DKU   Supervisor: Dr. Ming Li

- Conduct speech separation and enhancement using discrete tokens and Large Language Models
- My first-author paper TSELM: Target Speaker Extraction using Discrete tokens and Language Models is submitted to ICASSP which is the first to investigate the use of audio tokens and language models for target speaker extraction through comparative experiments and comprehensive metrics
- Explore discretization methods for mixed speech

Research Assistant for Federated Learning Project   May 2023 – Jan 2024
The Edge Intelligence Lab at DKU   Supervisor: Dr. Bing Luo

- Deploy Federated Learning (FL) and Federated Analytics (FA) on Edge Devices
- Build privacy-preserving health monitoring system using FL and FA on DKU campus
- Android and iOS full-stack development

PUBLICATIONS

Tang, B., & Li, M. (2024). Target Speaker Extraction using SSL Models and Decoder-only Large Language Models. Manuscript in preparation, planned submission to ICME 2025

Tang, B., Zeng, B., & Li, M. (2024). TSELM: Target Speaker Extraction using Discrete Tokens and Language Models. *arXiv preprint arXiv:2409.07841*. (Submitted to ICASSP 2025)

Geng, J., **Tang, B.**, Zhang, B., Shao, J., & Luo, B. (2024). Demo: FedCampus: A real-world privacy-preserving mobile application for smart campus via federated learning & analytics. In *Proceedings of the 25th International Symposium on Theory, Algorithmic Foundations, and Protocol Design for Mobile Networks and Mobile Computing (MobiHoc '24)*. ACM.

He, S., **Tang, B.**, Zhang, B., Shao, J., Ouyang, X., Nugraha, D. N., & Luo, B. (2024). Fedkit: Enabling cross-platform federated learning for Android and iOS. In *IEEE INFOCOM 2024 - IEEE Conference on Computer Communications Workshops (INFOCOM WKSHPS)* (pp. 1–2). https://doi.org/10.1109/INFOCOMWKSHPS61880.2024.10620662

TEACHING EXPERIENCE

The Computer Science Center at DKU   May 2022 – May 2023
Student Worker and Teaching Assistant for COMPSCI 201: Intro to Programming and Data Structures Instructor: Dr. Jiang Long

- Develop quiz website using Django framework in Python – no bugs are reported in usage
- Cooperate with other teaching assistants to come up with new quizzes and teaching plans for the course
- Cover course material and homework in recitation and lab sections to improve students' grades

SERVICES

- President for DKU Running Club   May 2024 – Present
  - Lead daily practices
  - Collaborate with other leaderships to build comfortable and inclusive running atmosphere
  - Compete cross-countries, half marathons and marathons

- ▪ Vice President for DKU Basketball Club & DKU Basketball official team member   May 2021 – Jan 2024
  - o Organize and coordinate basketball events, ensuring smooth execution and participation
  - o Manage financial planning and budgeting for club events and activities
  - o Play games representing DKU
- ▪ Volunteer for Duke China US-Summit   Aug 2023
- ▪ Volunteer for Health Education Program for high school students   Aug 2021 – Aug 2022

AWARDS

- ▪ Silver Medal, International Genetically Engineered Machine (iGEM) 2023 DKU Team   Nov 2023
  - o Develop team wiki page independently
  - o Create a markdown website for easy collaboration
- ▪ Champion, One-Kilometer Run, Physical Fitness Test (2022)   Oct 2022
- ▪ Dean's List (Fall 2021 & Fall 2022) and Dean's List with Distinction (Spring 2022 & Spring 2023)
- ▪ 75% Tuition Scholarship for Undergraduate Program: UGRD Entrance Scholarship, JF Progressive Scholarship

SKILLS

- • **Languages**
  - o English (fluent) with TOEFL scores 107, Mandarin (native)
- • **Programming Languages**
  - o Python, Java, JavaScript, SML-NJ
- • **Frameworks and Tools**
  - o PyTorch, Django, Vue, MySQL