

Jiyang Tang

jt304@duke.edu · tjysdsg.github.io

EDUCATION

Duke Kunshan University (<https://dukekunshan.edu.cn/en/about/>)/Duke University

May 2022

Bachelor of Science in Data Science (by Duke Kunshan)

Bachelor of Science in Interdisciplinary Studies (Data Science, by Duke)

- English Only Teaching Medium
- **Cumulative GPA:** 3.61/4.0; **Major GPA:** 3.70/4.0
- **Core Courses:** Computer Vision, Statistical Machine Learning, Interdisciplinary Data Analysis, Algorithms and Databases, Numerical Analysis and Optimization, Advanced Linear Algebra, Principles of Machine Learning, Deep Learning, Data Acquisition and Visualization, Probability, Random Variables and Stochastic Processes, Advanced Software Design and Implementation, Computer Organization and Programming, Introduction to Programming and Data Structure, etc.
- **Honors and Awards:**
 - Dii (DKU iNOVATION iNCUBATOR) 2020 Batch Funding (**RMB 20,000**), 12/2020
 - DKU Summer Research Program Funding (**RMB 12,800**), 06/2020
 - DKU Undergraduate Entrance Scholarship (**RMB 170,000**), 08/2018

EXPERIENCE

Research Assistant, Speech and Multimodal Intelligent Information Processing (SMIIP) Lab

<https://sites.duke.edu/dkusmiip>

Researcher, DKU Summer Research Program

Signature Work & Publication

May 2019-Present

- Acquired substantial knowledge of Automatic Speech Recognition covering signal processing, acoustic modeling, language modeling, and so forth under Professor Ming Li's supervision
- Wrote a complete speech recognition system for English pronunciation of digits using Python+Numpy without deep learning toolkits
- Constructed a high-quality image dataset of Chinese endemic birds (data were scrape from google images, containing around 100 GB images of around 1,300 bird categories)
- **Computer Aided Pronunciation Training (CAPT) as my research focus**
 - Constructed a CAPT system consisting of a server backend and a mobile app (closed beta) to help international students at DKU learn Mandarin
 - Cooperated with two language experts at DKU Language and Culture Center and student volunteers to continuously optimize the app
 - Implemented Mandarin pronunciation evaluation algorithms (including implementing the core algorithm and porting parts of Kaldi to Cython) and deployed a web server
 - Currently building an L2 learner's Mandarin speech corpus
 - **End-to-End Mandarin Tone Classification with Short Term Context Information**, accepted by APSIPA ASC 2021, as the primary author (<https://arxiv.org/abs/2104.05657>)
- Worked as a remote volunteer during Interspeech 2020, responsible for reviewing conference videos, sending emails, managing zoom meetings, etc.
- Research experience reported on DKU official webpage <https://dukekunshan.edu.cn/zh/news/in-data-students-find-thei-truth>

Xiaomi Technology Co., Ltd.

Jul 2020-Aug 2020

Research Assistant Intern

Beijing, China

- Worked at Xiaomi, under the supervision of Dr. Junbo Zhang, a senior researcher, and Dr. Yujun Wang, the director of the speech technology department
- Main researcher of a project aiming to improve the existing CAPT system's performance using end-to-end speech recognition and unsupervised speech processing.

iFLYTEK Co., Ltd.

Jul 2020-Aug 2020

Assistant Software Engineer Intern

Chengdu, China

- Participated in projects closely related to *Xunfei Yingyutong*, an AI English pronunciation coaching device using CAPT technology to help the users improve their English proficiency
- Developed software tools for colleagues, such as automatic price monitor for third-party online shops, network traffic diagnosis, etc.

LEADERSHIP AND INVOLVEMENT

Interdisciplinary Contest in Modeling

Jan 2020-Feb 2020

Team Leader

- Won Honorable Mention Prize
- Provided a creative solution to soccer team strategy evaluation using network science and machine learning

Technical Artisans Club at Duke Kunshan University

Mar 2020-May 2020

Deputy Director

- Organized and hosted various large C/C++ training sessions
- Wrote a forum system for DKU
- One of the core contributors to the DKU Online Judge website and the problem set

Presento Team, Dii (DKU iNOVATION iNCUBATOR) 2020 Batch

Dec 2020-Present

Core Technical Member

- Passed the 1st round competition with another 13 teams (14/49)
- Worked with my teammates to build an AI communication coaching app. The app can provide intelligent and personalized evaluation and feedback to improve a person's communication skills
- We developed a multi-modal method utilizing the power of facial emotion detection, speech evaluation, paralinguistics, NLP, and pose estimation
- Mainly responsible for implementing and integrating speech evaluation (including fluency, vocabulary, intelligibility, etc.) and body language detection
- Attended a roadshow hosted by DKU and the Kunshan government in April 2021
- Dii news: <https://mp.weixin.qq.com/s/EGfpfsR8mtLrhVbkPEHKGw>

TECHNICAL SKILLS

- Very familiar with C++, Python, Linux, and Deep Learning/ASR frameworks including PyTorch, Espnet, Kaldi, etc.
- Very familiar with Git-based software development workflow, and contributed to open-source projects like Espnet, Wenet, etc.
- Familiar with Java
- Familiar with SGE and SLURM
- Somewhat familiar with Natural Language Processing
- Some experience in game engines (Unity, Godot) and mobile development (Android/iOS development and Flutter framework)
- Some experience in database related technologies: SQL, PostgreSQL, SQLAlchemy, and MongoDB

ADDITIONAL INFORMATION

- Languages: Chinese-Native, English-Advanced
- Designed my own object-oriented programming language and constructed a compiler for it using C++ and LLVM (<https://github.com/tjysdsg/tan>)