Enmao Diao, *B.S. Candidate*

Email:emdiao@gatech.edu

Phone: (404)834-3911

Website: http://dem123456789.github.io/

EDUCATION

2012 Aug - 2016 May **Georgia Institute of Technology**, Atlanta, GA, B.S. in Electrical Engineering, **GPA: 4.0/4.0**

- Completed course/knowledge background in digital signal processing and wireless networks (Fourier Transform, Stochastic Process, Wireless Network Protocols, etc.)
- Undergraduate Research Assistant, advised by Prof. Elliot Moore II, Associate Professor.
- Teaching Assistant for ECE2031: Digital Design Lab (2013 Summer), taught by Prof. Thomas Collins, Principle Research Engineer.
- Senior Design: Autonomous Sailboat for Penguin Tracking, advised by Prof. Michael E. West, Senior Research Engineer.

2013 Aug - 2016 May **Georgia Institute of Technology**, Atlanta, GA, B.S. in Computer Science, **GPA: 4.0/4.0**

- Completed course/knowledge background in Big Data and Information Network (Machine Learning, Computer Networks, Database Systems, etc.)
- Undergraduate Research Assistant, advised by Prof. Hyesoon Kim, Associate Professor.
- Undergraduate Research Assistant, advised by Prof. Jeff Young, Research Scientist.
- Junior Design: Vocal Reminder, advised by Dr. Olufisayo Omojokun.

RESEARCH INTERESTS

- Digital Signal Processing
- Neural Engineerings
- Machine Learning
- Data Analytics

RESEARCH EXPERIENCE

2014 May-Present **Undergraduate Research: A Real-time System to Detect Humming Note for Mobile Application**

Advisor: PhD candidate Udit Gupta and Prof. Elliot Moore, Georgia Tech

- Implemented polyphonic and monophonic audio melody extraction algorithms.
- Conduct technical review on Audio Melody Extraction based on the results from annually held conference MIREX (the Music Information Retrieval Evaluation eXchange).
- Studied the available monophonic pitch detection algorithms like RAPT, YIN and YAAPT.
- Proposed a mobile application based on monophonic pitch detection algorithm which enables normal people to compose music with their own humming voices.
- Won President Undergraduate Research Award (PURA) from Georgia Tech.
- The mobile application is in development.

2015 Jan-2015 May **Undergraduate Research: FPGA based Cellular Neural Network (CNN)**

Advisor: Prof. Hyesoon Kim, Georgia Tech

- Implemented a 16x16 Cellular Neural Network (CNN) on FPGA and simulated with ModelSim.
- Studied SP-CNN: A Scalable and Programmable CNN-based Accelerator, which processes image without size limitation of naïve CNN.
- Studied CNN templates for image processing and genetic algorithm for CNN template learning.

2015 Aug-Present **Undergraduate Research: OpenHMC (Hybrid Memory Cube) Interface on Altera FPGA Board**

Advisor: Dr. Jeff Young, Georgia Tech

- Studied OpenHMC module and simulation on NCsim and ModelSim.
- Integrated package generator and HMC module on Altera Arria 10 board.

PROJECTS

Aug 2015- Present **Big Data Analytics: Distributed Machine Learning Algorithms**, *Georgia Tech, Atlanta, GA*

- Tested the performance of Classification and Clustering algorithms like Naïve Bayes and Random Forest on Mahout and Spark with Million Songs and MNIST dataset and Amazon EMR. Reviewed and compared the performance of MIREX audio genre classification submissions.

Jan 2015- Present **Autonomous Sailboat for Penguin Tracking**, *Georgia Tech, Atlanta, GA*

- Designed and implemented unmanned sailboat to track and record visual data of penguins, involving development of embedded system, navigation control, power management and wireless communication.

Jan 2015- May 2015 **Library management system**, *Georgia Tech, Atlanta, GA*

- Designed and implemented a Database system for library using PHP and MySQL.

Jan 2015- May 2015 **NS2 simulation and performance evaluation of TCP**, *Georgia Tech, Atlanta, GA*

- Conducted simulations to compare the performance of various flavors of TCP like NewReno, Reno, Tahoe and Sack.

May 2014- Aug 2014 **Trip Planner web application design**, *Georgia Tech, Atlanta, GA*

- Developed a trip planner involving using Google and Yelp API to retrieve information of restaurants and hotels.

Jan 2014- May 2014 **Infrared Signal-Controlled DE2Bot Design**, *Georgia Tech, Atlanta, GA*

- Designed and implemented a warehouse robot navigation system using DE2Bot and assembly.

Jan 2013- May 2013 **Gameboy game development**, *Georgia Tech, Atlanta, GA*

- Developed Gameboy games involving hand-coded collision detection.

IMPORTANT COURSES TAKEN

- ECE 2026, *Introduction to Signal Processing, Prof. Mark A. Clements*
- ECE 4260, *Random Signals and Applications, Prof. Mark A. Clements*
- ECE 4270, *Fundamentals of Digital Signal Processing, Prof. Mark A. Clements*
- ECE 4607, *Mobile&Wireless Networks, Prof. Matthieu Bloch*
- CS 4365/8803, *Introduction to Enterprise Computing, Prof. Ling Liu*

PUBLICATION

- Enmao Diao, " Audio Melody Extraction: Evaluation and Approaches," in *Audio, Speech, and Language Processing, IEEE Transactions* (In Peer Review)

HONORS AND AWARDS

- Georgia Tech President's Undergraduate Research Awards (PURA) (2015)
- Golden ticket of the InVenture Prize at Georgia Tech (2016)

REFERENCE

Elliot Moore II, Associate Professor, Georgia Institute of Technology
Email: em80@mail.gatech.edu Phone:
Phone: (404) 385-7354

Udit Gupta, PhD Candidate, Georgia Institute of Technology
Email: uditgupta@gatech.edu
Phone: (912) 330-4928

Hyesoon Kim, Associate Professor, Georgia Institute of Technology
Email: hyesoon@cc.gatech.edu
Phone: (404) 385-3303