# XUE Boyang

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Research Interest: Language Modelling, Speech Recognition, Machine Learning.

## Education

Pursing Ph.D. in The Chinese University of Hong Kong (CUHK). Aug.2021 - Present
B.Eng. in Huazhong University of Science and Technology (HUST). Sep.2016 – Jun.2020

## Publications

**First Author:**

Bayesian Transformer Language Models for Speech Recognition. *ICASSP 2021*.

Bayesian Neural Network Language Models for Speech Recognition. In submission to *TASLP*.

*Chinese Patent*: Patient-specific Fetal Heartbeat Rate Detection Model Based on Deep Learning.

*Bachelor Thesis*: Heads-up Limit Hold'em Texas Poker based on CFR with Advanced Abstractions.

## Experiences

**Sep.2020 – Present:** Research Assistant and Ph.D. student in CUHK supervised by **Prof. Xunying LIU**.

Project 1: Applying a Bayesian framework including Bayesian Neural Networks, Gaussian Process Neural Networks, Variational Neural Networks in conventional LSTM-RNN and Transformer language models to address the overfitting and poor generalization issues given limited training set. Two papers are published on speech top conference *ICASSP* (accepted) and top journal *TASLP* (in submission).

Project 2: Applying long-span cross-utterance neural network language models for lattice decoding and rescoring in speech recognition, with the generalization improvements in real-time speech recognition applications by incorporating long-span contexts dependency. A paper is prepared for *Interspeech 2022*.

**Sep.2019 - June.2020:** Research Intern in Intelligent Control Lab, HUST supervised by **Prof. Ye YUAN**.

Principal Investigator of a Fetal Heartbeat Detection Project (co-operate with Tongji Hospital). Propose a deep-learning based framework to achieve patient-specific diagnosis on FECG and write a Chinese patent.

**Sep.2018 - Aug.2019:** Team Leader in Robotic Team, HUST supervised by **Prof. Dingxin HE**.

Designed Balanced cars, Tracking cars for Beacons, Energy-efficient cars et al. and joined the *NXP Cup National University Intelligent Car Race* twice. Responsible for the programming and algorithm design for signal processing, motion control, wireless charging and embedding development.

## Awards & Honors

- National First Prize in *14th NXP Cup National University Intelligent Car Race*.
- Second Prize in *9th APMCM Mathematical Modelling Contest*.
- Several provincial prizes in Intelligent Car races and Mathematical Modelling contests.
- Excellent Graduate Prize, Excellent Leader Prize, Scholarships.

## Skills

- Excellent mathematical, data structure and machine learning basis, C++, Python programming skills.
- Mastery in Linux Operation, PyTorch for deep learning development and Kaldi for speech development.
- Elementary in Computer Vision, Game Theory, Signal Systems, Cybernetics et al.
- Excellent communication, leadership, team spirit and English skills. Writing on various related forums.