Sunwoo Kim

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PhD student in Intelligent Systems Engineering of Indiana University Bloomington. Passionate about machine learning and deep learning solutions for signal processing challenges. My focus lies in studying and modifying machine learning algorithms to solve problems in a more efficient manner.

Positions Held

- **Indiana University** — **Bloomington, IN**
  Advisor: Prof. Minje Kim — *Aug. 2016–Current*
  - Research Assistant
    - Signals and AI Group in Engineering (SAIGE)
  - Teaching Assistant
    - Deep Learning Systems
    - Machine Learning for Signal Processing
    - Software Engineering I

- **Qualcomm** — **San Diego, CA**
  Mentor: Shuhua Zhang — *May 2019–Aug. 2019*
  - Research Intern
    - Audio R&D Team

- **National Center for Supercomputing Applications** — **Urbana, IL**
  Advisor: Prof. Shaowen Wang — *May 2015–May 2016*
  - Research Intern
    - CyberGIS Center

Education

- **Ph.D. in Intelligent Systems Engineering** — **Bloomington, IN**
  Indiana University — *May 2021*
  - Advisor: Prof. Minje Kim

- **B.S. in Physics** — **Urbana, IL**
  University of Illinois at Urbana-Champaign — *May 2016*

Publications

Peer Reviewed Conference Proceedings

- **Sunwoo Kim**, Mrinmoy Maity, Minje Kim, "Incremental Binarization On Recurrent Neural Networks For Single-Channel Source Separation," In Proc. *International Conference on Acoustics, Speech, and Signal Processing (ICASSP)*, Brighton, UK, May 12-17, 2019.

- **Sunwoo Kim**, Haici Yang, Minje Kim, "Boosted Locality Sensitive Hashing: Discriminative Binary Codes For Source Separation," In Proc. *International Conference on Acoustics, Speech, and Signal Processing (ICASSP)*, Barcelona, Spain, May 4-8, 2020.
  [Nominated for the Best Student Paper Award]

Research Funding

- **National Science Foundation**
  Advisor: Prof. Minje Kim *Oct. 2019–Sep. 2022*
  - Title: "FET: Small: A Portable and Intelligent Testing System for Power-efficient and Accurate Foodborne Pathogen Detection"
  - Research Assistant
- **Intel Corporation**
  Advisor: Prof. Minje Kim *Jan. 2017–Dec. 2018*
  - Title: "Bitwise Deep Recurrent Neural Networks for Efficient Context-Aware Pervasive Systems"
  - Research Assistant

Professional Activities

Conference Reviewer

- IEEE International Conference on Acoustics, Speech, and Signal Processing (ICASSP) - 2020.

Journal Reviewer

- European Association for Signal Processing (EURASIP) Journal on Audio, Speech, and Music Processing.

Technical and Personal skills

- **Programming:** Python, C++, Java, R, MATLAB
- **Libraries:** Tensorflow, PyTorch, Keras
- **Languages:** Fluent in Korean and English. Able to understand basic Chinese (Mandarin).