CURRICULUM VITAE

PROFILE

Name: Hengheng Zhang

Date of Birth: 4th April, 1992

Nationality: People's Republic of China

Email: henghengzhang@nuist.edu.cn

Affiliation: School of Atmosphere physics,

Nanjing University of Information Science & Technology (NUIST),

Nanjing, 210044, P.R. China

EDUCATION

Master of Science   2016-2019

School of Atmosphere Physics in NUIST.

Majored in Atmosphere Remote Sensing and Sounding; supervised by Prof. Lingbing Bu (supervisor) and Prof. Weilin Pan (co-supervisor), focused on research in the Lidar retrieve methods as well as the construction and maintenance of the Lidar system.

Bachelor of Engineering   2012-2016

School of Physics and optoelectronic in NUIST.

Majored in Optical Information Science and Technology and participated in many contests during my undergraduate period such as National Undergraduate Electronics Design Contest. Also I began to conduct science research work in the third year under the supervision of Prof. Lingbing Bu.

PUBLICATIONS & PROCEEDINGS

Paper:

- Hengheng Zhang, Lingbing Bu et al. "Retrieving homogeneous liquid cloud microphysical properties using multiple-field-of-view Lidar." Journey of Applied Remote Sensing.

Patent:

- Kunling Shan, Hengheng Zhang, lingbing Bu. "A Lidar gate-control signal generation device." patent of P.R. China.
- Lingbing Bu, Hengheng Zhang et al. "A Multi-node atmospheric environment monitoring system." patent of P.R. China.

RESEARCH EXPERIENCE

- **Constructed an innovative multiple-field-of-view Lidar system to study multiple-scattering of cloud**

  Proposed a new method to retrieve liquid cloud microphysical properties (Liquid Water Content and Cloud Droplet Effective Size) based on multiple scattering by using Monte Carlo method and used above Lidar system to valid this method under the supervision of Prof. Lingbing Bu.

- **Participated in field experiments to maintain and improve Lidar system in Atmospheric Profiling Synthetic Observation System (APSOS)**

  Took part in this research work firstly in Golmud, Qinghai Province (altitude: 2800m) in 2015. From then on, I have often conducted field experiments in Huainan, Anhui Province and Yangbajing, Tibet (altitude: 4300m), mainly maintaining the Lidar system and improving the detectability of the Lidar system, especially for aerosol-cloud-water vapor Lidar system developed by IAP, CAS.

- **Improved Lidar retrieve methods of aerosol, cloud and water vapor in order to use it in Tibet Plateau**

  As the Lidar retrieve methods are not suitable for the atmosphere in Tibet, so their parameters need adjusting to get better results. My work mainly focused on the retrieve methods of aerosol (Fernald method, kettle method and aerosol retrieve method using Raman channel), water vapor and cloud parameters under the supervision of Prof. Weilin Pan.

- **Designed and realized a Lidar gate-control system using FPGA**

  Conducted this research under the supervision of Prof. Lingbing Bu. Designed and realized the gate-control system controlled by FPGA with Verilog language. This system can effectively solve the problem of Lidar signal saturating in the near-ground. **Based on this technology, I have applied for a patent of P.R. China.**

HONORS

- **Outstanding Winner Smart Meteorological Innovation Contest of NUIST**

  Designed and realized a multi-node atmosphere environment monitoring system based on Microcontroller Unit (MCU). This system can collect environment atmosphere data from different nodes and monitor atmosphere environment in a programmed computer software using blue tooth technologies for short distance or SIM card module for long distance. **Based on this technology, I have applied for a patent of P.R. China.**

- **The Second Prize of Preliminary National Electronic Design Competition (2 times)**

  (1) Designed and realized a metal detection system which can find the metal autonomously based on MCU. This system can detect the metal under glass and give the position indicator **(2014)**. (2) Designed and realized Digital Frequency Meter based on FPGA. This Digital Frequency Meter can measure period, frequency, and duty cycle of sinusoidal signal whose frequency ranges from 1Hz to 100 MHz and it can also measure time interval of two square signals whose frequency ranges from 100Hz to 100 MHz **(2015)**.

- **The First Prize of Electronic Design Contest of NUIST (2 times)**

  (1) Designed and realized an automatic drawing machine system based on MCU. This system can draw circle, square and ellipse according to parameters input by a keyboard **(2014)**. (2) Designed and realized a Lissajous-Figure demonstration system based on FPGA. The system can generate two channel signals with adjustable frequency and phase by digitizing, dividing frequency, shifting phase and filtering 900 KHz sinusoidal signal output by Direct Digital Synthesizer (DDS). These two channel signals can display different Lissajous-Figure on an oscilloscope in X-Y mode **(2015)**.

- **The First Prize of Brainstorm Technology Innovation Contest of NUIST**

  Designed a smart optical detection instrument based on MCU. This instrument can collect optical diffraction and interference patterns by CCD and display these patterns on Liquid Crystal Display (LCD).

- **The Second Prize of Challenge Cup of NUIST**

  Designed and realized a real-time image collection and processing system based on FPGA. This system can collect images by a CMOS camera and process them by using filter, edge detection, corrosion, swell and other image processing algorithms in real time.

- **The Second Prize of Physics Contest of NUIST**

- **Excellent League Member of NUIST**

CO-OP ACTIVITIES

- Guest student of Institute of Atmosphere Physics (IAP), Chinese Academy of Sciences (CAS)

- **Reported in the 5th International Symposium on Atmospheric Light Scattering and Remote Sensing**

- Participated in the 10th Workshop on Long-term Change and Trends in the Atmosphere.

INTERESTS AND HOBBIES

I had been in Association of Communities for two years and I was **Minister of Design Department of Association of Communities** in NUIST in the second year. My major tasks were to make poster and video for the communities' parties. I am familiar with common image processing software for instance Photoshop and video processing software for instance Corel Video Studio.