

Jae Bum Pahk

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Ph.D. in Mechanical Engineering with experimental and analytical knowledge and skills
in solid transport, particle science and fluid mechanics

WORK EXPERIENCE

University of Pittsburgh, Dept. of Chemical and Petroleum Engineering, Pittsburgh, PA
Postdoctoral Fellow, Jan. 2007 - Present

❖ **Solid transport experiment**

- Worked on National Science Foundation (NSF) project, collaborated with DOW Chemical Company and Bangurion University, Israel
- Set up experimental plan, purchased instruments
- Built up dense phase pneumatic conveying system and installed its related measurement devices (strain gauges, pressure transducers etc)
- Collected signal data and analyzed them using LABVIEW and MATLAB
- Consulted pneumatic conveying problems occurred in industry
- Supervised three undergraduate students' research in pneumatic conveying
- Developed voidage measurement method within a plug for dense phase conveying
- Designed an instrument to measure the frictional force between particles and pipe wall without disturbing particle's flow
- Wrote academic journal papers and project progress report, assisted with prepare new funding proposals

❖ **Human Brain Simulation of blast wave**

- Participated in research on Traumatic Brain Injury (TBI) due to shock wave
- Built up 3-D model and meshed for human brain from MR image for FEA simulation
- Analyzed the simulation results with other research group members
- Assisted with preparing documents such as funding proposal, conference paper

University of Pittsburgh, Dept. of Mechanical Engineering and Material Science, Pittsburgh, PA
Graduate Student Researcher, 2004-2006

- Worked on inter American dilute phase pneumatic conveying project funded by NSF
- Built up dilute pneumatic conveying system and install its related measurement devices (pressure transducers, load cell, air velocity transmitter etc.)
- Planned for experiments and purchase experimental instruments and devices
- Collected data using LABVIEW and analyzed them using MATLAB
- Took high speed videos to observe particle's moving behavior
- Developed various methods of pressure signal analysis (attractor diagram, power spectral density, rescaled range analysis, and wavelet analysis)

Carnegie Mellon University, Dept. of Mechanical Engineering, Pittsburgh, PA
Research assistant, 2002-2004

- Used Computational Fluid Dynamics to predict spray particle's behavior.(Fluent 3D)
- Experiment to measure particle size, velocity and acceleration using Phase Doppler Particle Analyzer, Greenfield Imaging Systems

Genex International Corp. Seoul, Korea
Sr. Engineer, Assistant Manager 2002

- Prepared and participated in bidding to supply military equipments for Korean Air Force

Staff, Engineer

- General trading work with foreign countries
- Quality Control Engineer of electric shock protector for land line telephone.
- Supplied products to Korean Telecommunication Company (KT)
- Reviewed MOU for technical and marketing alliance

University of Pittsburgh, Dept. of Mechanical Engineering 1996-1998

Research assistant

- Built up FORTRAN code to simulate human shoulder joint motion
- Analyzed results from simulation

EDUCATION

University of Pittsburgh, Pittsburgh, PA 2004-2006

Doctor of Philosophy, Mechanical Engineering, Dec. 2006

Carnegie Mellon University, Pittsburgh, PA 2002-2004

Master of Science, Mechanical Engineering, May. 2004

University of Pittsburgh, Pittsburgh, PA 1995-1998

M.S., Mechanical Engineering, Apr. 1998

Kookmin University 1990-1995

B.S. Mechanics and Design, Spring 1995

OTHER EXPERIENCES

Translator's team leader (English – Korean) 2006-current

- Recruited, and organized translators for Korean inventors who participate in international invention show
- Worked with Korean Invention Promotion Association (KIPA) to help their official work at international invention show

Military Service

Korean Army, Kyunggi, Korea 2000-2002

SKILLS

<u>Computer:</u>	Operating system:	DOS, Windows, Linux
	Software/languages:	LABVIEW, MATLAB, FORTRAN, BASIC, Microsoft word, excel, power point
	CFD:	Gambit & FLUENT
	3D Modeling:	MIMICS, Brain Suite

Laboratory: Phase Doppler Particle Analyzer, Greenfield CCD Imaging Systems, Phantom high speed video camera 4.2, multi-pycnometer, and other quantitative analysis instrumentations (Pressure transducer, Hotwire air velocity anemometer, Thermocouple, load cell, Strain gauge etc)

Language: Korean(Mother language), English (Fluent), Japanese (Basic listening and speaking)

AWARDS

Sunggok merit scholarship, Runner up merit scholarships, Kookmin University (5 semesters)
Research and Teaching Assistantship, University of Pittsburgh

PROFESSIONAL REFERENCES

George E. Klinzing, Ph.D. Professor, Vice Provost for Research

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