

# Jae-Yeon Jung

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## EXPERIENCE

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### **FITI Testing & Research Institute, Seoul, South Korea**

*Research Associate, Reliability Assessment Center*

Jun.2023 – Dec.2023

- Participated in three national projects; communicated with companies and institutions that cooperate with the projects and achieved targeted results through experiments and research.
  - Development of standards for anti-terrorism protection equipment of Police Special Operation Unit
    - Analyzed the characteristics of materials and testing standards in existing bulletproof.
    - Conducted an on-site visit to the Police Special Forces unit and identified any discomfort or inconveniences in equipment usage.
  - Development of Lightweight and High Performances SCBA for firefighting.
    - Conducted a comparative analysis on the effects of clothing pressure and 3D shape of SCBA used in Germany, the United States, and Korea.
  - Development of Smart Cooling Vests to prevent thermal diseases.
    - Organized and conducted the field tests, evaluating physiological responses by wearing smart cooling vests in groups of couriers, farmers, and elderly residents living in shantytown.

### **Korea Institute of Industrial Technology, Ansan, South Korea**

*Research Associate, Human Convergence Technology R&D group*

Apr.2021- Jun.2021

- Led an electromyography-based human experiment for application in smart clothing.
- Investigated the prior research on smart clothing production and analyzed the functions used in smart clothing on sale.

### **Seoul National University, Seoul, South Korea**

*Teaching Assistant*

Sep.2018 - Aug.2020

- Assisted students with laboratory experiments in class of 'Clothing and Health', 'Functional Clothing'.
- Managed administrative tasks in the laboratory, facilitating effective communication between professors, researchers, and administrative staff.

## EDUCATION

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### **Seoul National University, Seoul, South Korea**

Sep.2018 - Feb.2021

*Master of Science in Clothing and Textiles, prof. Joo-young. Lee. Clothing and Health, COM:FORT Lab*  
PPE development, Functional clothing, Clothing physiology, Research data analysis, Ergonomics.

**Master thesis:** 'Performance Evaluation of Face Masks: Inhalation Resistance, Fit Factor, Total Inward Leakage and Respiratory Burden'

### **The Catholic University of Korea, Bucheon, South Korea**

Apr.2014 - Aug. 2018

*Bachelor of Arts in Economics. Minor in Clothing and Textiles:* Macroeconomics, microeconomics, Econometrics, International finance, Fashion trend analysis. Fashion consumer behavior.

## PUBLICATIONS

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- [J10] **Jung, J. Y.**, & Lee, J. Y. (2024). (Under review). Inhalation Resistance of Face Masks with Different Filtration Efficiencies and Designs at Various Flow Rates and Moisture Saturation. *The Journal of Occupational Safety and Health*
- [J9] **Jung, J. Y.** & Lee, J. Y (2021). Effects of Heating and UV Sterilization of Repeatedly Reused Face Masks on Inhalation Resistance and Fiber Structure. *Journal of the Korean Society of Clothing and Textiles* .23(3), 406-414.
- [J8] **Jung, J. Y.**, & Lee, J. Y. (2021). Comparison of Fit Factor and Total Inward Leakage of Face Masks : Exploratory Evaluation by Mask Designs and Face Panels . *Journal of the Korean Society of Clothing and Textiles*.
- [J7] **Jung, J. Y.**, Kang, C. H., Seong, Y. C., Jang, S. H., & Lee, J. Y. (2020). Effects of Wearing COVID-19 Protective Face Masks on Respiratory, Cardiovascular Responses and Wear Comfort During Rest and Exercise. *Journal of the Korean Society of Clothing and Textiles*, 22(6), 1-11.
- [J6] **Jung, J. Y.**, Kang, J. H., Seol, S. H., & Lee, J. Y. (2020). Developing Liquid Cooling Garments to Alleviate Heat Strain of Workers in Summer and Exploring Effective Cooling Temperature and Body Regions. *Journal of the Korean Society of Clothing and Textiles*, 22(2), 250-260.
- [J5] Lee, J. Y., Park, J. H., Baek, Y. J., Jung, D. H., Ko, Y. R., **Jung, J. Y.**, Kang, J. H., Lee, T. K., Lee, Y. J., Song, E. Y., Son, S. Y., Kwon, J. Y., & Kim, S. H. (2020). Regional and Sex Differences in Cognition and Wear Behavior Concerning Fine-dust Protective Masks during High Concentration Days. *Journal of the Korean Society of Clothing and Textiles*, 44(3), 516-538.
- [J4] **Jung, J. Y.**, Ko, B. J., Kim, D. H., Kwon, M. J., Kang, S. W., Choi, J. Y., & Lee, J. Y. (2019). Development of Special Firefighter Protective Clothing Using Nomex Honeycomb Structure Fabric and Evaluation of Its Protective and Comfort Performance. *Journal of the Korean Society of Clothing and Textiles*, 21(5), 606-617.
- [J3] Ko, Y., **Jung, J. Y.**, Kim, H. T., & Lee, J. Y. (2019). Auditory Canal Temperature Measurement Using a Wearable Device During Sleep: Comparisons with Rectal Temperatures at 6, 10, and 14 cm Depths. *Journal of Thermal Biology*, 85, 102410.
- [J2] Kim, D. H., **Jung, J. Y.**, & Lee, J. Y. (2019). Evaluation of Firefighter Turnout Gear Visibility in Smoke Obscuration and Flame Damage. *Journal of the Korean Society of Living Environment System*, 26(3), 358-373.
- [J1] Kim, D. H., **Jung, J. Y.**, Kim, D. H., & Lee, J. Y. (2019). Effects of Wearing Nomex Body Cooling Garment inside Firefighting Protective Equipment on the Efficiency of Performance During Simulated Firefighters' Tasks. *Journal of the Korean Society of Living Environment System*, 26(1), 9-24.

## **PRESENTATIONS AND CONFERENCES**

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- [C18] **Jung, J. Y.**, & Lee, J. Y. (2024, Jung 3-7). Inhalation Resistance of Face Masks with Different Filtration Efficiencies and Designs at Various Flow Rates and Moisture Saturation. *20<sup>th</sup> International*

*Conference on Environmental Ergonomics (ICEE)* Poster session presented at JEJU International Convention Center, South Korea

[C17] **Jung, J. Y.**, Yu, S.E., & Kim, S. Y. (2023, November). Comparative analysis of clothing pressure measurement devices following the development of standards for tight-fitting garments. *Korean Society of Clothing and Textiles, Fall Conference*. Poster session presented at FITI Testing & Research Institute, Seoul, South Korea (Best poster award)

[C16] Jung, G., Oh, H., Xie, J., **Jung, J. Y.**, Cho, E., & Park, J. (2021, April 20). Development of a wearable hand assistive device for hemiplegic patients. *The Korean Society of Clothing and Textiles, Spring Conference*. Poster session presented at Seoul National University, Seoul, South Korea.

[C15] **Jung, J. Y.**, & Lee, J. Y. (2020, December 28-30). Evaluation and Improvement of Domestic and International Health Masks Against COVID-19. *The Korean Society of Living Environment System, Fall Conference*. Poster session presented at Seoul National University, Seoul, South Korea.

[C14] **Jung, J. Y.** & Lee, J. Y. (2020, October 17). Effects of Design Elements and Wearing Methods on Inhalation Resistance of Health Masks with Various Filtration Levels. *The Korean Society of Clothing and Textiles, Fall Conference*. Poster session presented at Seoul National University, Seoul, South Korea.

[C13] **Jung, J. Y.**, & Lee, J. Y. (2020, May 21-23). Fit factors and physiological impacts of dust protective masks during exercise. *International Conference on Clothing and Textiles 2020 (ICCT)*. Oral presentation presented at Busan, Republic of Korea.

[C12] **Jung, J. Y.**, Kang, J., Ko, Y., Seol, S. H., & Lee, J. Y. (2020, February 10-14). What cooling temperature and which body part are the most effective for alleviating heat strain while walking in warm and humid environments? *5th International Congress on Soldiers' Physical Performance (ICSPP)*. Oral presentation presented at Quebec City, Canada.

[C11] **Jung, J. Y.**, Kang, J., Seol, S. H., Ko, Y., & Lee, J. Y. (2019, October 19). Exploration of Optimal Cooling Temperature and Effective Body Cooling Sites for Mitigating Heat Strain. *The Korean Society of Clothing and Textiles, Fall Conference*. Poster session presented at Yonsei University, Seoul, South Korea.

[C10] Lee, J. Y., Park, J. H., Baek, Y. J., Jung, D. H., **Jung, J. Y.**, Kang, J. H., Lee, T. K., Lee, Y. J., Song, E. Y., Son, S. Y., Kwon, J. Y., & Kim, S. H. (2019, October 19). Regional Differences in Perception and Wearing Behavior of Anti-Dust Masks During High-Concentration Fine Dust Seasons in Korea. *The Korean Society of Clothing and Textiles, Fall Conference*. Oral presentation presented at Yonsei University, Seoul, South Korea.

[C9] **Jung, J. Y.**, Ku, P., Kim, D. H., Kwon, M. J., Choi, J. Y., & Lee, J. Y. (2019, July 7-12). Development and Evaluation of Layered Nomex Honeycomb Fabric Protective Clothing for Firefighters under Extreme Heat. *International Conference on Environmental Ergonomics (ICEE)*. Poster session presented at Amsterdam, Netherlands.

[C8] Jung, D. H., **Jung, J. Y.**, Kim, S., & Lee, J. Y. (2019, July 7-12). Maximum Exposure Time while Wearing Protective Clothing in Extreme Heat Environment. *International Conference on Environmental Ergonomics (ICEE)*. Poster session presented at Amsterdam, Netherlands.

[C7] Ko, Y., **Jung, J. Y.**, Kim, H., & Lee, J. Y. (2019, July 7-12). Comparisons of Core Body Temperatures during 7-Hour Sleep: Rectal at 6, 10, 14 cm Depth, Ear Canal, and Sublingual Temperatures. *International Conference on Environmental Ergonomics (ICEE)*. Poster session presented at Amsterdam, Netherlands.

[C6] **Jung, J. Y.**, Ku, P., Kim, D. H., & Lee, J. Y. (2019, April 20). Development and Evaluation of Layered Nomex Honeycomb Fabric Protective Clothing for Firefighters under Extreme Heat. *The Korean Society of Clothing and Textiles, Spring Conference*. Poster session presented at Seoul National University, Seoul, South Korea.

[C5] Jung, D. H., **Jung, J. Y.**, Kim, S., & Lee, J. Y. (2019, April 20). Effects of Wearing Personal Protective Equipment in Hot Summer Conditions on Whole Body and Local Sweating Responses. *The Korean Society of Clothing and Textiles, Spring Conference*. Poster session presented at Seoul National University, Seoul, South Korea.

[C4] Ko, Y., Seol, S. H., Kang, J. H., **Jung, J. Y.**, & Lee, J. Y. (2019, April 20). Effects of 10-Day Short-Term Heat Acclimation Training Using Liquid Cooling Garments on Human Physiological Responses. *The Korean Society of Clothing and Textiles, Spring Conference*. Poster session presented at Seoul National University, Seoul, South Korea.

[C3] **Jung, J. Y.**, Kim, S., Jung, D. H., & Lee, J. Y. (2018, December 1). Thermal Sensation and Perception of Comfort during Full Body Protection in Summer Conditions: Differences at Air Temperatures of 28, 33, 38°C. *The Korean Society of Living Environment System, Fall Conference*. Poster session presented at Yonsei University, Seoul, South Korea.

[C2] Kim, D., **Jung, J. Y.**, Ku, B., & Lee, J. Y. (2018, December 1). Evaluation of Thermal Protection Performance of Dry and Wet Firefighting Gloves Depending on Environmental Humidity Using Flame Hand Mannequin. *The Korean Society of Living Environment System, Fall Conference*. Poster session presented at Yonsei University, Seoul, South Korea.

[C1] Kim, D., **Jung, J. Y.**, Ku, B., & Lee, J. Y. (2018, December 1). Evaluation of Visibility of Firefighter Suits in Flame and Smoke Exposure Conditions. *The Korean Society of Living Environment System, Fall Conference*. Poster session presented at Yonsei University, Seoul, South Korea.

## **PROJECTS INVOLVED IN**

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Development of standards for anti-terrorism protection equipment of Police Special Operation Unit. *The National Police Agency* (June 2023 – September 2023, FITI Testing & Research Institute)

Development of High-Performance Lightweight SCBA, *The National Fire Agency* (June 2023 - September 2023, FITI Testing & Research Institute)

Development of Smart Cooling Vests for the Prevention of Heat-Related Illnesses (June 2023 - September 2023, FITI Testing & Research Institute)

Development of Safety Management and Evaluation Technology for Health Masks, *Ministry of Food and Drug Safety of Korea* (May 2020 - February 2021, Seoul National University, Research Lab of Clothing and Health)

Development of Special Functional Clothing for the Prevention of Heat Stress in Summer Workers, (March 2019 - August 2019, Seoul National University, Research Lab of Clothing and Health)

Validation of Wearable Wristband Blood Pressure Monitors in Hypertensive Patients (November 2018 - December 2018, Seoul National University, Research Lab of Clothing and Health)

Validation of LG In-Ear Thermometer During Comfortable Sleep, *LG electronics* (July 2018 - September 2018, , Seoul National University, Research Lab of Clothing and Health)

Development of Protective Clothing Material Technology for Emergency Response in Extreme Environments, *National Fire Agency* (August 2018 - March 2019, Seoul National University, Research Lab of Clothing and Health)

Quantification of Heat Stress in Adult Korean Males for Temperature Model Optimization Using AI Technology to Counteract Heatwaves, *Korea Meteorological Administration* (July 2018 - December 2018, Seoul National University, Research Lab of Clothing and Health)

## AWARDS AND HONORS

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- The Korea industry Society of Clothes and Textile 2023  
The Best presentation award. *'Comparative analysis of clothing pressure measurement devices following the development of standards for tight-fitting garments.'*
- The Korea Society of Clothes and Textiles. *The fashion Merchandising Contest* 2017  
The second prize. *'Development of Northface IoT merchandising.'*
- The Catholic University of Korea. *Academic Contest of Clothing and Textiles* 2016  
The First prize. *'Development of Dior Underwear'*
- The Catholic University of Korea. *'ACE' The Community of Learning Cooperation* 2016  
The First prize. *'Development of Uniforms for Mentally Disabled Employees of Social Enterprise 'Bear Better'*
- The Catholic University of Korea. Ethic Leadership Person scholarship 2016

## SKILLS, ACTIVITIES & INTERESTS

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**Languages:** Native in Korean. Fluent in English (1-year middle school immersion in Oregon, US)

**Skills:** Excellent at Micro office (Excel, PowerPoint and Words), Adobe Photoshop, Illustrator  
IBM SPSS, Grapher, Start to learn programming, 3D scanner, Sewing machine

**Activities:** AIESEC Catholic University of Korea (International young leadership institute), Volunteer at Seodaemun Disabled Welfare Center for 1 year

**Interests:** Swimming, Hiking, Newspaper Subscription.