Duin Baek

Email: duin.baek@gmail.com   **Linked-in:** www.linkedin.com/in/duin-baek

Mobile: +1-631-428-3568   **Git-hub:** https://github.com/barrelo89

Education

Stony Brook University, New York, US   January 2014 – December 2020 (expected)

- Ph.D. Candidate of Engineering in Computer Science, GPA: 3.85/4.0

Yonsei University College of Engineering, Seoul, Korea   March 2008 - February 2014

- Bachelor of Science in Electrical Engineering, GPA: 3.61/4.5

Research Focus

Machine learning application for

1) Improving Quality of Experience in Video Streaming Service
2) Video Compression
3) User Authentication by Analyzing Human-related data (Bio & Sensor data)

Publications (family name changed from 'Back' to 'Baek', *Equal Contribution)

1. **Duin Baek**, Jing Chen, and Bong Jun Choi, "Small Profits and Quick Returns: An Incentive Mechanism Design for Crowdsourcing under Continuous Platform Competition", IEEE Internet of Things Journal, Sep 13, 2019 (2018 JCR IF: 9.515)

2. **Duin Baek**, Pratik Musale, and Jihoon Ryoo, "Walk to Show Your Identity: Gait-based Seamless User Authentication Framework Using Deep Neural Network", ACM WearSys 2019, Seoul Korea, June 21, 2019

3. **Duin Baek,** hangil Kang, and Jihoon Ryoo, "Saliency based 360° Video Contents Encoding for Streaming Service" (poster), ACM MobiSys '19, June 17-21 2019

4. **Duin Baek*,** Pratik Musale*, Simon Woo, and Bong Jun Choi, "You Walk, We Authenticate: Lightweight Seamless Authentication based on Gait in Wearable IoT Systems", IEEE Access, March 08, 2019 (2018 JCR IF: 4.098)

5. **Duin Baek*,** Pratik Musale*, and Bong Jun Choi, "Lightweight Gait-based Authentication Technique for IoT System," 2018 IEEE 4th World Forum on Internet of Things, Singapore, Feb 05-08 2018

6. **Duin Baek***, Pratik Musale*, Simon Woo, and Bong Jun Choi, "Lightweight Gait-based Authentication Technique for IoT System," ACM CoNEXT 2017, Student Workshop, Incheon Korea, Dec 12-15 2017

7. **Duin Back**, Bong Jun Choi and Jing Chen, "Small Profits and Quick Returns: A Practical Social Welfare Maximizing Incentive Mechanism for Deadline-Sensitive Tasks in Crowdsourcing," AAAI HCOMP 2017, Work-In-Progress paper, Quebec Canada, Oct 23-26 2017

8. **Duin Back** and Bong Jun Choi, "SWIM: Social Welfare Maximizing Incentive Mechanism for Smart Meter Data Aggregation," IARIA Green 2016, Nice France, July 24-28, 2016

9. Tan N. Le, **Duin Back,** and Bong Jun Choi, "The Evaluation of Wireless Communication in Microgrids using OPNET," International Smart Grid Conference, Gwangju, Korea, Oct 12-14 2015

Ongoing Research

1. Computation-Efficient Super-Resolution-based Video Streaming Service
2. Saliency-based 360-degree Video Streaming Service
3. Heterogeneous Gait (walking and running) based User Authentication
4. Generating Fake Running Gait Data from Walking Gait Data Using GAN

Projects Experience

Low-cost professional-cleaning multiple-robot system (for complex, multi-floor, and wide environments)
- Global ATC (Advanced Technology Center), Ministry of Trade, Industry and Energy, South Korea, April 2017 – December 2017
- Role: Fleet Management Platform Design & Robot Coverage Path Optimization

SALI360: Saliency-based 360 Video Streaming Service
- National Research Foundation, January 2017 – Present
- Role: Saliency-based VR Video Encoding

Computer Language Proficiency

Python: proficient

1. Big Data analysis: numpy, pandas
2. Machine learning: scikit, sklearn, tensorflow, pytorch, keras
3. Computer vision: opencv

Java, SQL: proficient

Certificate

Natural Language Processing with Deep Learning in Python	UC-9OFOJESB, Udemy August 2017
Natural Language Processing (NLP) in Python	UC-D1GT3IHQ, Udemy August 2017

Scholarships

Merit-based scholarship ($1/3^{rd}$ tuition)	Fall 2011
National Scholarship for Science and Engineering (full tuition)	2012–2013
IT Consilience Creative Program (ITCCP) scholarship (full tuition + housing)	2014–2016

Teaching Assistant

CSE215	Foundations of Computer Science (Discrete Mathematics)	Spring 2017
CSE219	Computer Science 3 (Android Application Design and Development)	Spring 2017