

Duin Baek

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Education

Yonsei University College of Engineering, Seoul

2014

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

Stony Brook University, College of Engineering and Applied Sciences

2014–Present

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

Research Objective

Machine learning application for

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

Publications (Family name changed from 'Back' to 'Baek')

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 Baek**, 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 Baek** 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 Baek**, and Bong Jun Choi, "The Evaluation of Wireless Communication in Microgrids using OPNET," International Smart Grid Conference, Gwangju, Korea, Oct 12-14 2015

*Equal Contribution

Ongoing Research

1. **Saliency-based 360-degree Video Streaming Service**
2. **Computation-Efficient Super-Resolution-based Video Streaming Service**

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–Present
- Role: Fleet Management Platform Design & Robot Coverage Path Optimization

SALI360: Saliency-based 360 Video Streaming Service

- National Research Foundation, 2017–Present
- Role: Saliency-based VR Video Encoding & Recurrent Neural Network Design to Predict Eye Gaze on Video

Computer Language Proficiency

Python: proficient (data analysis [numpy, pandas], visualization [matplotlib], machine learning [scikit, sklearn, tensorflow, pytorch, keras], and computer vision [opencv])

Java: proficient + android programming, **C** intermediate

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)	Spring 2014–Fall 2016

Teaching Assistant

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