Junhyug Noh

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RESEARCH INTERESTS

Object detection and its related high-level vision tasks
(*e.g.* semantic/instance segmentation, scene understanding, and image captioning)

EDUCATION

Seoul National University, Seoul, Korea — Mar 2015 – Feb 2020
- Ph.D. in Computer Science and Engineering
- Thesis: Improving Object Detection in Hard Conditions of Scale, Occlusion and Label
- Advisor: Prof. Gunhee Kim
- Total GPA: 4.08 / 4.3

Seoul National University, Seoul, Korea — Mar 2013 – Feb 2015
- M.S. in Computer Science and Engineering
- Thesis: Machine Learning Models and Missing Data Imputation Methods in Predicting the Progression of IgA Nephropathy
- Advisor: Prof. Robert Ian McKay
- Total GPA: 4.24 / 4.3

Indiana University, Bloomington, Indiana, USA — Aug 2008 – Jan 2009
- Intensive English Program (IEP)

Seoul National University, Seoul, Korea — Mar 2005 – Feb 2013
- B.S. in Computer Science and Engineering
- B.S. in Statistics (Double Major)
- Thesis: Prediction of Customer's Follow-on Purchase using Ensemble Methods
- Total GPA: 3.57 / 4.3

RESEARCH EXPERIENCE

Lawrence Livermore National Laboratory — Nov 2020 – Current
- Postdoctoral Researcher
  - Advisor: Dr. Alan David Kaplan

Vision and Learning Laboratory, Seoul National University — Mar 2020 – Aug 2020
- Postdoctoral Researcher
  - Advisor: Prof. Gunhee Kim
  - Projects: Computer Vision (Weakly Supervised Object Localization, etc.), Medical AI

Vision and Learning Laboratory, Seoul National University — Mar 2015 – Feb 2020
- Graduate Research Assistant
  - Advisor: Prof. Gunhee Kim
  - Projects: Computer Vision (Object Detection, Semantic Segmentation, etc.), Medical AI

Medical Research Center for Innovation, Seoul National University Hospital — Jan 2016 – Aug 2016
- Visiting Researcher
  - Advisor: Prof. Yon Su Kim
  - Projects: Medical AI

Structural Complexity Laboratory, Seoul National University — Mar 2013 – Feb 2015
- Graduate Research Assistant
  - Advisor: Prof. Robert Ian McKay
  - Projects: Genetic Algorithm, Medical AI

PUBLICATIONS

PEER-REVIEWED (Conferences / Journals, *Equal contribution)

[12] Jae Shin Choi, Myoung-Hee Kim, Yong Chul Kim, Youn-Hee Lim, Hyun Joo Bae, Dong Ki Kim, Jae Yoon Park, **Junhyug Noh**, and Jung Pyo Lee. *"Recalibration and Validation of the Charlson Comorbidity Index in an Asian Population: The National Health Insurance Service-National Sample Cohort Study."* Scientific Reports, vol. 10, Aug 2020. (**SCI**)

[11] **Junhyug Noh***, Wonho Bae*, and Gunhee Kim. *"Rethinking Class Activation Mapping for Weakly Supervised Object Localization."* European Conference on Computer Vision (**ECCV 2020**). Glasgow, Sweden (Online), Aug 2020.

[10] **Junhyug Noh***, Kyung Don Yoo*, Wonho Bae, Jong Soo Lee, Kangil Kim, Jang-Hee Cho, Hajeong Lee, Dong Ki Kim, Chun Soo Lim, Shin-Wook Kang, Yong-Lim Kim, Yon Su Kim, Gunhee Kim, and Jung Pyo Lee. *"Prediction of the Mortality Risk in Peritoneal Dialysis Patients using Machine Learning Models: A Nation-wide Prospective Cohort in Korea."* Scientific Reports, vol. 10, May 2020. (**SCI**)

[9] **Junhyug Noh**, Wonho Bae, Wonhee Lee, Jinhwan Seo, and Gunhee Kim. *"Better to Follow, Follow to Be Better: Towards Precise Supervision of Feature Super-Resolution for Small Object Detection."* International Conference on Computer Vision (**ICCV 2019**). Seoul, Korea, Nov 2019.

[8] Kangil Kim, Dong-Kyun Kim, **Junhyug Noh**, and Minhyeok Kim. *"Stable Forecasting of Environmental Time Series via Long Short Term Memory Recurrent Neural Network."* IEEE Access, vol. 6, no. 1, pp. 75216–75228, Dec 2018. (**SCI**)

[7] Kangil Kim, **Junhyug Noh**, Dong-Kyun Kim, and Minhyeok Kim. *"Conflict Relaxation of Activation-Based Regularization for Neural Network."* IEEE Access, vol. 6, no. 1, pp. 52510–52518, Sep 2018. (**SCI**)

[6] **Junhyug Noh**, Soochan Lee, Beomsu Kim, and Gunhee Kim. *"Improving Occlusion and Hard Negative Handling for Single-Stage Pedestrian Detectors."* IEEE Conference on Computer Vision and Pattern Recognition (**CVPR 2018**). Salt Lake City, Utah, USA, Jun 2018.

[5] **Junhyug Noh***, Kyung Don Yoo*, Hajeong Lee, Dong Ki Kim, Chun Soo Lim, Young-Hoon Kim, Jung Pyo Lee, Gunhee Kim, and Yon Su Kim. *"A Machine Learning Approach Using Survival Statistics to Predict Graft Survival in Kidney Transplant Recipients: A Multicenter Cohort Study."* Scientific Reports, vol. 7, no. 1, pp. 8904, Aug 2017. (**SCI**)

[4] Kyung Don Yoo, Clara Tammy Kim, Myoung-Hee Kim, **Junhyug Noh**, Gunhee Kim, Ho Kim, Jung Nam An, Jae Yoon Park, Hyunjeong Cho, Kyoung Hoon Kim, Hyunwook Kim, Dong-Ryeol Ryu, Dong Ki Kim, Chun Soo Lim, Yon Su Kim, and Jung Pyo Lee. *"Superior Outcomes of Kidney Transplantation Compared with Dialysis."* Medicine, vol. 95, no. 33, e4352, Aug 2016. (**SCI**)

[3] **Junhyug Noh**, Dharani Punithan, Hajeong Lee, Jung Pyo Lee, Yon Su Kim, Dong Ki Kim, and Robert Ian McKay. *"Machine Learning Models and Statistical Measures for Predicting the Progression of IgA Nephropathy."* International Journal of Software Engineering and Knowledge Engineering, vol. 25, no. 5, pp. 829–849, Jun 2015. (**SCIE**)

[2] **Junhyug Noh**, Dharani Punithan, Hajeong Lee, Jung Pyo Lee, Yon Su Kim, Dong Ki Kim, and Robert Ian McKay. *"Predicting the Progression of IgA Nephropathy using Machine Learning Methods."* International Conference on Bio-inspired Information and Communications Technologies (**BICT 2014**). Boston, Massachusetts, USA, Dec 2014. (**Oral**)

[1] Wonhee Choe, Hyo-Sun Chun, **Junhyug Noh**, Seong-Deok Lee, and Byoung-Tak Zhang. *"Estimating Multiple Evoked Emotions from Videos."* Annual Meeting of the Cognitive Science Society (**CogSci 2013**). Berlin, Germany, Aug 2013.

NON PEER-REVIEWED (Workshops / Preprints, *Equal contribution)

[2] Yunchao Wei, Shuai Zheng, Ming-Ming Cheng, Hang Zhao, Liwei Wang, Errui Ding, Yi Yang, Antonio Torralba, Ting Liu, Guolei Sun, Wenguan Wang, Luc Van Gool, Wonho Bae, **Junhyug Noh**, Jinhwan Seo, Gunhee Kim, Hao Zhao, Ming Lu, Anbang Yao, Yiwen Guo, Yurong Chen, Li Zhang, Chuangchuang Tan, Tao Ruan, Guanghua Gu, Shikui Wei, Yao Zhao, Mariia Dobko, Ostap Viniavskyi, Oles Dobosevych, Zhendong Wang, Zhenyuan Chen, Chen Gong, Huanqing Yan, Jun He. *"LID 2020: The Learning from Imperfect Data Challenge Results."* arXiv Preprint arXiv:2010.11724. Oct 2020.

[1] **Junhyug Noh***, Wonho Bae*, Jinhwan Seo, and Gunhee Kim. *"Revisiting Class Activation Mapping for Learning from Imperfect Data."* Learning from Imperfect Data (LID) Workshop (**CVPRW 2020**). Seattle, Washington, USA (Online), Jun 2020.

AWARDS & SCHOLARSHIPS

Winner for Two Tracks of LID 2020 Challenge Jun 2020

- 1st place for Track 3: Weakly Supervised Object Localization.
- 2nd place for Track 1: Weakly Supervised Semantic Segmentation.

Excellent Award of Doctoral Degree Thesis Feb 2020

- Selected as the best doctoral thesis by Department of Computer Science and Engineering, Seoul National University.

Kakao Travel Grants Dec 2019

- Grant recipient for attending AAAI 2020 (New York, USA) as a part of Kakao Inc's research-support program

Naver Ph.D. Fellowship Award Nov 2018

- Awarded to outstanding graduate students in the computer Science field for one's exceptional academic research.

Excellent Award of Master Degree Thesis Feb 2015

- Selected as the best master's thesis by Department of Computer Science and Engineering, Seoul National University.

National Scholarship for Science and Engineering Mar 2005 – Jun 2011

- Funded full-tuition scholarship with stipend for undergraduate studies by Korea Student Aid Foundation (KOSAF).

WORK EXPERIENCE

OpenUB Inc., Seoul, Korea Sep 2020 – Oct 2020

- Data Scientist
  - Developed a model for predicting sales of stores to recommend a new business location.

EveryBike Inc., Seoul, Korea Mar 2020 – Jun 2020

- Data Scientist
  - Established data collection and bike rebalancing strategy for the bike-sharing system.
  - Developed a population visualization tool for selecting service areas.

Kakao Mobility Corp., Seongnam, Korea Jun 2018 – Aug 2018

- Research Intern
  - Developed a number plate detection and recognition model.

Rolling Heads Inc., Seoul, Korea Feb 2013 – Mar 2014

- Technical Advisor
  - Developed a matching algorithm of social dating applications using a genetic algorithm.

TEACHING EXPERIENCE

Teaching Assistant and **Guest Lecturer**, Seoul National University Mar 2013 – Dec 2016

- M1522.001000 Computer Vision (Instructor: Gunhee Kim)
- 4190.773 Probabilistic Graphical Models (Instructor: Gunhee Kim)
- 4190.429 Image Processing (Instructor: Gunhee Kim)
- 4190.680 Knowledge Representation and Reasoning (Instructor: Robert Ian McKay)
- 4190.569 Technical Writing for Computer Engineers (Instructor: Robert Ian McKay)
- 4190.425 Advanced Artificial Intelligence (Instructor: Robert Ian McKay)
- 4190.101 Discrete Mathematics (Instructor: Robert Ian McKay)

Instructor, SNU/SK Big Data Academy Jun 2016 – Sep 2017

- Conducted courses in deep learning with a hands-on tutorial.
- Topics: TensorFlow, Convolutional Neural Networks, Object Detection, etc.

Instructor, HYUNDAI MOBIS Workshop Jun 2016 – Dec 2017

- Conducted courses in autonomous driving with a hands-on tutorial.
- Topics: Object Detection, Pedestrian Detection, Autonomous Driving.

Mentor, Samsung Convergence Software Course (SCSC) Aug 2015 – Jun 2016

- Worked as a mentor to support undergraduate students taking CSE major courses.

PROFESSIONAL ACTIVITIES

Reviewer

- European Conference on Computer Vision (ECCV) 2020 (Outstanding Reviewer)
- AAAI Conference on Artificial Intelligence (AAAI) 2021
- International Journal of Computer Vision (IJCV) 2019/2020
- IEEE Transactions on Circuits and Systems for Video Technology (TCSVT) 2020

- IEEE Transactions on Cybernetics 2020
- IEEE Transactions on Multimedia 2020
- IEEE Access 2020
- Knowledge-Based Systems 2020
- Remote Sensing 2020
- Scientific Reports 2020

OTHER EXPERIENCE

Military Service Jul 2006 – Jul 2008

602nd Battalion, 2nd Aviation Brigade, Army Aviation Operations Command, Chungbuk, Korea

- Had honorable discharge as a sergeant and fulfilled military duty.

SKILLS

Programming Languages. Python, R, C/C++, Java, Shell scripts (bash, zsh), Matlab, Ocaml

ML/DL Frameworks. TensorFlow, PyTorch, Caffe

Operating Systems. Linux (Ubuntu), macOS

Other Tools and Skills. Git, Latex, Vim

[*Last update: 2020-11-13*]