

WONHO BAE

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Research enthusiast interested in machine learning and computer vision, specifically for **self and weakly supervised** as well as **active learning** in the **object recognition** framework. Obtained Bachelor's and Master's from UC Berkeley and UMass, Amherst, respectively. Pursuing PhD at UBC under the supervision of Prof. Danica J. Sutherland.

EDUCATION

University of British Columbia <i>PhD of Computer Science</i>	<i>Sep 2020 - Present</i> <i>GPA: 4.0</i>
University of Massachusetts, Amherst <i>Master of Computer Science</i>	<i>Sep 2018 - May 2020</i> <i>GPA: 3.78</i>
University of California, Berkeley <i>Bachelor of Statistics</i>	<i>Sep 2013 - Dec 2017</i> <i>GPA: 3.76</i>
Santa Monica College <i>Associate of Economics, member of Alpha Gamma Sigma</i>	<i>Sep 2011 - May 2013</i> <i>GPA: 3.95</i>

RESEARCH EXPERIENCE

Vision & Learning Lab at Seoul National University <i>Research Assistant</i> - Supervisor: Prof. Gunhee Kim - Conducted a research on i) small object detection using Generative Adversarial Network in Faster R-CNN framework, ii) object localization task under weakly-supervised learning setting using a class activation mapping method.	<i>Feb 2018 - Sep 2020</i>
Data Science for Common Good Fellowship at UMass, Amherst <i>Research Fellow</i> - Supervisor: Dr. Brant Cheikes, Prof. Matthew Rattigan - Conducted a research on classifying wild animal images collected using camera traps in collaboration with The Nature Conservancy. Deployed a web-based open-source tool for ecologists.	<i>May 2019 - Aug 2019</i>
Renewable & Appropriate Energy Lab at UC Berkeley <i>Research Assistant</i> - Supervisor: Prof. Daniel Kammen, Prof. Deborah Sunter - Participated in the Inclusive Green Growth project. Worked on keyword detection task using Natural Language Process techniques to replace synonyms and pronouns in the text. Currently writing a book to publish.	<i>Jan 2017 - Dec 2017</i>

PUBLICATIONS

- [1] **Wonho Bae***, Mohamad Amin Mohamadi*, Danica Sutherland, "Making Look-Ahead Active Learning Strategies Feasible with Neural Tangent Kernels," **under review**.
- [2] Jinhwan Seo, **Wonho Bae**, Danica Sutherland, Junhyug Noh, Daijin Kim "Object Discovery via Contrastive Learning for Weakly Supervised Object Detection", in European Conference on Computer Vision (**ECCV 2022**), Tel-Aviv, Israel, Oct 2022.
- [3] **Wonho Bae**, Junhyug Noh, Milad Jalali Asadabadi, Danica J. Sutherland, "One Weird Trick to Improve Your Semi-Weakly Supervised Semantic Segmentation Model", in International Joint Conference on Artificial Intelligence (**IJCAI 2022**), Vienna, Austria, July 2022.
- [4] **Wonho Bae***, Junhyug Noh*, Gunhee Kim, "Rethinking Class Activations Mapping for Weakly Supervised Object Localization", in European Conference on Computer Vision (**ECCV 2020**), online, Aug 2020.

- [5] **Wonho Bae***, Junhyug Noh*, Gunhee Kim, "Revisiting Class Activations Mapping for Learning from Imperfect Data", in Conference on Computer Vision and Pattern Recognition (**CVPRW 2020**), online, June 2020.
- [6] Junhyug Noh, Kyung Don Yoo, **Wonho Bae**, ..., YonSu Kim, Gunhee Kim, "Prediction of the Mortality Risk in Peritoneal Dialysis Patients using Machine Learning Models: A Nation-wide Prospective Cohort in Korea", in **Scientific Reports (2020)** by Nature Publishing Group.
- [7] 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", in International Conference on Computer Vision (**ICCV 2019**), Seoul, Korea, Oct 2019.

WORK EXPERIENCE

Republic of Korea Army	<i>Feb 2015 - Nov 2016</i>
Signals Intelligence Analyst	
- Served in the intelligence battalion of the Republic of Korea Army for 21 months as a signals intelligence analyst.	

AWARD & SCHOLARSHIP

Learning from Imperfect Data (LID) Competition - 1st 1st place in LID workshop at CVPR 2020	<i>June 2020</i>
Data Science for Common Good Fellowship Research fellow in the Center of Data Science at UMass, Amherst	<i>May 2019 - Aug 2019</i>
American Math Competitions 3rd place in 2011 and 1st place in 2012	<i>2011 - 2012</i>

TEACHING

Teaching Assistant <i>Computer Vision (CPSC 425 - UBC, Vancouver)</i>	<i>Term2 2021, 2022</i>
Grader <i>Computer Vision (COMPSCI 670 - UMass, Amherst)</i>	<i>Fall 2019</i>

OUTREACH/PRESENTATIONS

Talk at ViewMagine (Online) Gave a talk about 'how to access a research problem in computer vision' using ICCV 2019 and ECCV 2020 papers.	<i>Jan 2021</i>
AI Summer Seminar at UMass, Amherst Hosted AI seminar at UMass during Summer of 2019. Discussed various topics related to AI including but not limited to computer vision, natural language process and planning.	<i>Summer 2019</i>
Presentation for Inclusive Green Growth at Institute of Advanced Study, Germany Gave a talk about a data-driven approach for measuring Inclusive Green Growth of different countries and regions at Hanse-Wissenschaftskolleg Institute for Advanced Study in Germany.	<i>Aug 2018</i>

SERVICE

Paper Review NeurIPS (2021), CVPR (2022), ICML (2022)	
Volunteer Mentor in Science Undergraduate Society Mentorship Program at UBC	<i>Sep 2022 - Dec 2022</i>

TECHNICAL SKILLS

Programming Language:	Python, Julia, R
Deep Learning Tools:	Pytorch, Jax, Tensorflow