

WONHO BAE

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Research enthusiast interested in machine learning and computer vision, specifically for low supervision regime such as **self and weakly supervised** as well as **active** and **meta learning**.

EDUCATION

University of British Columbia <i>PhD of Computer Science</i>	<i>Sep 2020 - Present</i> <i>GPA: 4.00</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

Borealis AI at Vancouver <i>Research Intern</i> - Supervisor: Dr. Gabriel Oliveira, Dr. Fred Tung, and Dr. Mohamed Ahmed - Conducted a research on temporal point processes to capture periodic patterns in long-term event sequences.	<i>May 2022 - Sep 2022, May 2023 - Present</i>
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] Mohamad Amin Mohamadi, **Wonho Bae**, Danica Sutherland, “A Fast, Well-Founded Approximation to the Empirical Neural Tangent Kernel”, in **ICML 2023**, Hawaii, July 2023.
- [2] **Wonho Bae**, Mohamed Osama Ahmed, Gabriel Leivas Oliveira, Frederick Tung, “Meta Temporal Point Processes”, in **ICLR 2023**, Kigali, Rwanda, May 2023.
- [3] Yi Ren, Shangmin Guo, **Wonho Bae**, Danica J. Sutherland, “How to Prepare Your Task Head for Finetuning”, in **ICLR 2023**, Kigali, Rwanda, May 2023.

- [4] Junhyug Noh, Kyung Don Yoo, **Wonho Bae**, ..., YonSu Kim, Gunhee Kim, “Predicting outcomes of continuous renal replacement therapy using body composition monitoring: a deep-learning approach”, in **Scientific Reports (2023)** by Nature Publishing Group.
- [5] Mohamad Amin Mohamadi*, **Wonho Bae***, Danica Sutherland, “Making Look-Ahead Active Learning Strategies Feasible with Neural Tangent Kernels”, in **NeurIPS 2022**, New Orleans, LA, Nov 2022.
- [6] Jinhwan Seo, **Wonho Bae**, Danica J. Sutherland, Junhyug Noh, Daijin Kim “Object Discovery via Contrastive Learning for Weakly Supervised Object Detection”, in **ECCV 2022**, Tel-Aviv, Israel, Oct 2022.
- [7] **Wonho Bae**, Junhyug Noh, Milad Jalali Asadabadi, Danica J. Sutherland, “One Weird Trick to Improve Your Semi-Weakly Supervised Semantic Segmentation Model”, in **IJCAI 2022**, Vienna, Austria, July 2022.
- [8] **Wonho Bae***, Junhyug Noh*, Gunhee Kim, “Rethinking Class Activations Mapping for Weakly Supervised Object Localization”, in **ECCV 2020**, online, Aug 2020.
- [9] 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.
- [10] 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 **ICCV 2019**, Seoul, Korea, Oct 2019.

WORK EXPERIENCE

Republic of Korea Army

Feb 2015 - Nov 2016

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

June 2020

1st place in LID workshop at CVPR 2020

Data Science for Common Good Fellowship

May 2019 - Aug 2019

Research fellow in the Center of Data Science at UMass, Amherst

American Math Competitions

2011 - 2012

3rd place in 2011 and 1st place in 2012

TEACHING

Teaching Assistant

Advanced Machine Learning (2023), Computer Vision (2019 - UMass, 2021, 2022)

OUTREACH / PRESENTATIONS

Talk at Borealis AI, Vancouver

Sep 2023

Gave a talk about “Meta Temporal Point Processes”, ICLR 2023 at Borealis-UBC workshop.

Talk at ViewMagine (Online)

Jan 2021

Gave a talk about “how to access a research problem in computer vision” based on the publications from ICCV 2019 and ECCV 2020 and research design course in UMass.

AI Summer Seminar at UMass, Amherst

Summer 2019

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.

Presentation for Inclusive Green Growth at Institute of Advanced Study, Germany

Aug 2018

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.

SERVICES

Paper Review

NeurIPS (2021, 2022, 2023), ICML (2022, 2023), ICLR (2023), CVPR (2022, 2023)

Volunteer

Sep 2022 - Dec 2022

Mentor in Science Undergraduate Society Mentorship Program at UBC