Victor Ion Butoi

Massachusetts Institute of Technology
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RESEARCH INTERESTS

Machine Learning, Computer Vision, Medical Imaging, Robotics, Multi-modal learning, Uncertainty Quantification.

ACADEMIC BACKGROUND

Massachusetts Institute of Technology — August 2022 - May 2028
Ph.D. Computer Science — *Cambridge, Massachusetts*

Cornell University — Sep 2018 - May 2022
B.Sc. Computer Science — *Ithaca, New York*
- GPA: 3.96/4.3 (*Magna Cum Laude*)

SELECTED PUBLICATIONS

1. UniverSeg: Universal Medical Image Segmentation
   ICCV 2023, *MedNeurIPS* 2022
   Victor Ion Butoi*, Jose Javier* Gonzalez Ortiz, Tianyu Ma, John Guttag, Mert R. Sabuncu, Adrian V. Dalca
2. VoxelPrompt: A Vision-Language Agent for Grounded Medical Image Analysis
   ICCV 2025, CVAMD workshop, (Oral Presentation)
   Andrew Hoopes, **Victor Ion Butoi**, John Guttag, Adrian V. Dalca
3. ConMe: Rethinking Evaluation of Compositional Reasoning for Modern VLMs
   NeurIPS 2024, Datasets and Benchmarks, 2024
   Irene Huang, Wei Lin, Muhammad Jehanzeb Mirza, Jacob A Hansen, Sivan Doveh, **Victor Ion Butoi**, Roei Herzig, Assaf Arbelle, Hilde Kuehne, Trevor Darrell, Chuang Gan, Aude Oliva, Rogerio Feris, Leonid Karlinsky
4. DEUP: Direct Epistemic Uncertainty Prediction
   TLMR 2023
   Moksh Jain*, Salem Lahlou*, Hadi Nekoei, **Victor Ion Butoi**, Paul Bertin, Jarrid Rector-Brooks, Maksym Korablyov, Yoshua Bengio

** denotes equal contribution*

EMPLOYMENT HISTORY

Waymo — June 2025 - August 2025
DL/CV Intern — *Mountain View, CA*
Advised by Scott Roy
- Implemented Matryoshka Representation Learning for 3D object detection in diverse self-driving environments.
- Our flexible compute training strategy results in models that that can be deployed at different performance/speed levels at test-time with no additional training.

IBM — May 2023 - September 2023
Research Intern — *Cambridge, MA*
Advised by Dr. Leonid Karlinsky & Dr. Rogerio Feris
- Implemented LoRA fine-tuning for several multi-billion parameter Vision-Language Models (Mini-GPT4, InstructBLIP) across a variety of encoder/decoder language backbones (Flan-T5, Vicuna).

- Created a novel training objective involving the relational-expansion of objects in sentences and implemented a standardized evaluation suite across a large set of visual question answering benchmarks (VL Checklist, ARO, SugarCREPE, CREPE).

ASAPP May 2022 - Sep 2022
Research Intern *New York, NY*
Advised by Dr. Felix Wu & Prof. Kilian Weinberger

- Implemented state-space (S4) models for long sequence classification tasks.
- Devised alternative architecture that improves SOTA performance on Long Range Arena (LRA) while reducing model complexity.

Mila - Quebec AI Institute, **LambdaZero Team** May 2020 - Feb 2021
Research Intern *Quebec, Canada*
Advised by Professor Yoshua Bengio & Professor Pierre-Luc Bacon

- Coded GP regression and MC-Dropout for comparison in uncertainty quantification and data-driven model optimization.
- Implemented message-passing graph neural networks for prediction of molecule binding energy. Achieved 93% ranking accuracy, and ran statistical analysis to demonstrate performance in molecule space.

Siemens Healthineers Jun 2019 - Aug 2019
Research Intern *Plainsboro, NJ*
Advised by Dr. Florin Ghesu

- Implemented several machine learning papers in Pytorch, including UNet and Mask-RCNN, for medical segmentation.
- Achieved state of the art 96.5% accuracy for the targeted anatomy and created a system for production.

HONORS AND AWARDS

Massachusetts Institute of Technology
NSF Graduate Research Fellow ***(16% acceptance rate)***

Cornell University
Merrill Presidential Scholar ***(awarded to top 1% of class)***
Tau Beta Pi ***(awarded to top 12.5% of school of engineering)***
Outstanding TA Award ***(awarded to top 10% of TAs)***
Wood Excellence Engineering Research Grant
CIS Dream Grant
Tanner Dean Research Grant
Dean's List (all semesters)
Johnson Controls Foundation Scholarship
Tanner Dean Scholar

TEACHING EXPERIENCE

Deep Learning (6.7960) Sep 2025 - Dec 2025
Head Teaching Assistant, Graduate Level

- Instructors: Professor Sara Beery, Kaiming He, Omar Khattab

Advanced Topics in Machine Learning (CS 6784) Dec 2021 - May 2022
Teaching Assistant, Graduate Level

- Instructor: Professor Kilian Weinberger

Introduction to Machine Learning (CS 4780) Sep 2021 - Dec 2021
Head Teaching Assistant
- ▶ Instructors: Professor Kilian Weinberger, Anil Damle

OO Programming and Data Structures (CS 2110) Jun 2021 - Aug 2021
Teaching Assistant
- ▶ Instructor: Professor Ali Erkan

Introduction to Machine Learning (CS 4780) Jan 2021 - May 2021
Head Teaching Assistant
- ▶ Instructor: Professor Thorsten Joachims

Introduction to Machine Learning (CS 4780) Sep 2020 - Dec 2020
Teaching Assistant
- ▶ Instructor: Professor Thorsten Joachims

Computer System Organization (CS 3410) Jan 2020 - May 2020
Teaching Assistant
- ▶ Instructor: Professor Hakim Weatherspoon

SERVICE

Reviewer for: AutoML, ICML, ICLR, NeurIPS, CVPR

INVITED TALKS

1. Universal Medical Image Segmentation Through In-Context Learning (ML Seminar) *Siemens Healthineers*. June 2024.
2. UniverSeg, a Universal Medical Image Segmentation Model (FoundationalAI Seminar) *GE Healthcare*. Mar 2024.
3. Discussion of UniverSeg, a Universal Medical Image Segmentation Model (Speaker Series) *PathAI*. June 2023.

OUTREACH AND LEADERSHIP

ML Tea Jan 2025 - Present
Co-coordinator *Cambridge, MA*
- ▶ Co-running weekly seminar that promoted students to present their ongoing work in machine learning topics.

GAAP (Graduate Application Assistance Program) Sep 2022 - November 2024
Mentor *Cambridge, MA*
- ▶ Mentor students applying for graduate school from underprivileged backgrounds.

Cornell Data Science May 2021 - May 2022
President *Ithaca, NY*
- ▶ Facilitated club operations of 60+ undergraduates pursuing data science projects.

Association for Computer Science Undergraduates Sep 2019 - Sep 2021
Academic Team Chair *Ithaca, NY*
- ▶ Twice lead undergraduate research night involving 30+ PhDs and 200+ undergrads.

Inspirit AI May 2021 - Aug 2021
AI Instructor *Remote*
- ▶ Taught AI concepts made curriculum and led 30 high-schoolers in AI projects.

APPLICABLE SKILLS	**Languages:** Python, Java, C/C++, OCaml, SQL, JavaScript, React, Bash, MATLAB **Libraries:** Pytorch, JAX, Torch Geometric, BoTorch, Keras/Tensorflow, Git, Jupyter, Docker, Weights&Biases
LAST UPDATED	*October 21st, 2025*