Truong Buu Phan

	Website: truongbuu.github.io - Email: phanbuu1194@gmail.com Google Scholar - LinkedIn			
RESEARCH INTERESTS	My primary interest lies in exploring the fundamental limits of deep learning-based tems, with a specific focus on their efficiency, complexity, robustness, and scalabili approach these systems as complex distributed processing and communication netw and employ tools from information theory, probability, and optimization to conduce depth investigations. In recent collaborative work, we investigated the tradeoff bet temporal consistency and distortion in learned perceptual video compression and posed an efficient universal representation for such systems.	sys- ty. I vorks t in- ween pro-		
	Previously, I worked on adversarial attacks, approximate inference, out-of-distribution detection, and uncertainty quantification for neural networks.			
ACADEMIC BACKGROUND	Ph.D. Electrical and Computer Engineering 2022 - Pro University of Toronto, Canada	esent		
	• Research in information theory & machine learning with Prof. Ashish KI Currently focusing on fundamental limits in neural compression and channel ulation.	histi. sim-		
	MASc. Electrical and Computer Engineering 2017-	2019		
	 University of Waterloo, Canada Research in deep learning, uncertainty alignment and out-of-distribution deter with Prof. Krzysztof Czarnecki. 	ction		
	BEng. Electrical Engineering2012-Vietnam National University, Vietnam.2012-	2016		
RESEARCH EXPERIENCE	Vector Institute for AI, Canada June 2023 - Pre Faculty Affiliate Researcher (Information Theory & Deep Learning). Advisor: Prof. Ashish Khisti.	esent		
	LG Electronics AI Lab, Canada 2021 - Research Engineer (Continual Learning & Computer Vision).	2022		
	Algolux (acquired by Torc Robotics in 2023), Canada2019 -Research Scientist (Adversarial Attack and Efficient Deep Learning)Collaborators: Prof. Felix Heide and Dr. Fahim Mannan.	2021		
SELECTED PUBLICATIONS	 Salehkalaibar Sadaf*, Buu Phan*, Jun Chen, Wei Yu, and Ashish Khisti: On Choice of Perception Loss Function for Learned Video Compression. NeuRIPS (2) (Equal Contributions). Accepted as spotlight paper in the Neural Compression W shop, ICML 2023. Contributions: develop deep learning experiments, theoretical formulation and discussion. Paper summary: We show a counter-intuitive phenomenon in perceptual neuroideo compression. 	ı the 2023) Vork- idea eural		

Buu Phan, Fahim Mannan, and Felix Heide: Adversarial imaging pipelines. In Pro-

ceedings of the IEEE/CVF Conference on Computer Vision and Pattern Recognition, pp. 16051-16061. 2021.

- Contributions: theoretical and experimental development, idea discussion.
- *Paper summary:* We develop a gradient based adversarial attack method on camera optics and ISPs.

Buu Phan, Samin Khan, Rick Salay, and Krzysztof Czarnecki: *Bayesian uncertainty quantification with synthetic data*. In Computer Safety, Reliability, and Security: SAFE-COMP 2019 Workshops. Received a best paper award.

- Contributions: theoretical and experimental development, idea proposal.
- *Paper summary:* We show that uncertainty estimates from neural networks are surprisingly aligned spatially with human perception.

Denouden, Taylor, Rick Salay, Krzysztof Czarnecki, Vahdat Abdelzad, **Buu Phan**, and Sachin Vernekar. *Improving reconstruction autoencoder out-of-distribution detection with Mahalanobis distance*. arXiv preprint arXiv:1812.02765 (2018).

- Contributions: idea proposal.
- *Paper summary:* We show why Mahalanobis distance is important for reconstructionbased OOD detection and vice versa.

OTHERBest viewed at my Google Scholar.PUBLICATIONS

AWARDS	Ontario Graduate Scholarship	2023
	Award for top students in Ontario, Canada.	
	Best paper award	2019
	Received at the Workshop on Artificial Intelligence Safety Engineeri "Bayesian uncertainty quantification with synthetic data."	ng for the paper
	Toyota Canada Graduate Scholarship	2018
	Scholarship for graduate students working in AI Safety.	
	Faculty of Engineering Awards, University of Waterloo Scholarship for top-performing graduate students.	2018, 2019
	International Master's Student Awards, University of Waterloo Valedictorian, International University	2017-2019 2016
ACADEMIC SERVICES	• Reviewer - ICML 2023 Neural Compression Workshop	2023
	• Reviewer- Conference on Computer Vision and Pattern Recognition (CVPR) 2022	
SOFTWARE SKILLS	Programming: PyTorch, Tensorflow, Matlab, PyThon, C/C++. System: Unix, Docker.	