# BENEDICT AROCKIARAJ

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# SKILLS

Languages and Web Development:  $C/C++ \bullet$  Python  $\bullet$  Java  $\bullet$  HTML/CSS  $\bullet$  GLSL  $\bullet$  Javascript  $\bullet$  PHP  $\bullet$  SQL Tools and Frameworks: PyTorch • Tensorflow • OpenCV • Numpy • Git • Docker • Google Cloud • BigQuery • AWS

#### EXPERIENCE

# Cruise

Machine Learning Engineer (Scene Prediction Team)

• Enhanced the trajectory prediction models to expand scene-prediction of animal movement, small pedestrians and pedestrians sitting/laying. Improved the behavior and safety of Cruise AV around such scenarios by 65%.

• Developed end-to-end pipeline for Transformers-based trajectory prediction architecture acting on vectorized map and agent information that reduced prediction latency by 20%, and improved training and validation speeds by 33%.

# Infilect

Machine Learning Engineer (Computer Vision Team)

• Built deep-learning pipelines using object detection, segmentation, fine-grained classification and self-supervised learning for retailers like Kimberly Clark, P&G, Lowe's, Coke and ABInBev to provide real-time competitive intelligence and on-shelf execution insights. Achieved >97% accuracy in detecting the smallest of SKUs and lifted per-store sales by 5%.

# Indian Institute of Science (VAL Lab)

Research Intern | Guide: Prof. Dr. R. Venkatesh Babu

• Wrote data-loaders and modeled the architecture for kinematic-structure preserving, unsupervised 3D pose estimation framework to effectively disentangle pose, foreground and background appearance information. Reduced MPJPE by as high as 40% (semi-supervised) and 15% (unsupervised) on datasets like Human3.6M, 3DHP, LSP and 3DPW.

# University of Quebec (LIVIA Lab, ETS Montreal)

Visiting Research Intern | Guide: Prof. Dr. Éric Granger

• Analyzed negative transfer (around 20% drop in mAP from baseline) and catastrophic forgetting of the existing imageto-image domain adaptation approaches on face-detection datasets, and studied the use of local features, and temporal information from trackers to generalize unsupervised domain adaptation approaches on datasets like SCUT and Widerface.

# PUBLICATIONS

Linguistic Properties of Truthful Responses Published at TrustNLP @ ACL 2023

• Investigated the phenomenon of predicting truthfulness of LLM's response using a large set of 220 handcrafted linguistic features. Focused on GPT-3 models and found that the linguistic profiles of responses are similar across model sizes.

# AWARDS

• Received the prestigious Vector Scholarship in Artificial Intelligence from the Vector Institute, Toronto

• Secured the coveted Mitacs Globalink Research Internship award to perform research at LIVIA, ETS Montreal

• Awarded the Indian Academy of Sciences' Research Fellowship to conduct research at CVIT, IIIT-Hyderabad

#### **EDUCATION**

**University of Pennsylvania** (MSE in Computer and Information Sciences)

CGPA: 4.0/4.0

Courses: Advanced Machine Perception, Learning in Robotics, Reinforcement Learning, NLP, Advanced Algorithms Teaching: Principles of Deep Learning, Applied Machine Learning

National Institute of Technology, Trichy (B. Tech. Honors in Computer Science) Courses: Probability, ML, AI, Image Processing, Data Mining

# CGPA: 9.47/10 | 2<sup>nd</sup>/104 students

January 2023 - May 2023

**Bangalore**, India

San Francisco, USA

May 2022 - Present

# **Bangalore**, India

May 2020 - August 2020

Montreal, Canada

May 2019 - Aug 2019

Nov 2020 - July 2021