

## Patents

- N. Vesdapunt, B. Wang, et al. [Reinforced Differentiable Attribute for 3D Face Reconstruction](#) July 2020, us MS# 408515-US-NP
- N. Vesdapunt, B. Wang, Y. Jin, P. Arsenault. [Human Pose Estimation](#) Dec 2018, us MS# 405486-US-NP
- J. Weisberg, N. Vesdapunt, et al. [Text Entity Detection and Recognition from Images](#) June 2018, us MS# 404685-US-NP
- B. Wang, N. Vesdapunt, et al. [Deep Learning on Image Frames to Generate a Summary](#) Mar 2018, us MS# 403536-US-NP

## Professional Experience

- Amazon** (Senior Applied Scientist) July 2021 - Present
- Shipped object detector for [Ring Package Alerts](#), face recognition model for [Visual ID on Echo Show](#), image retrieval model for [Alexa](#) and [Let's Chat](#).
  - Tech lead of Federated Evaluation, Domain Adaptation (saved cost ~\$140k/device), Video Understanding, Data Acquisition for [AGI](#) (10+ billions of data from coordinating company-wide, and purchasing from 3P).
  - Other notable works are Large Vision-language Model, Interleaved Data, Few-shot Learning, Image Generation.
- Microsoft** (Senior SDE) Feb 2017 - July 2021
- Shipped face detector for [Azure Face API](#) (use NAS to achieve +10% AP and 2x speed up), 3D face tracker for [SwiftKey](#) (run 60 fps on Pixel 2, and supports retargeting & 3D reconstruction for virtual presence in [HoloLens](#)), Burst photo selector for [Pix](#), video summarizer for [Comix](#).
  - Other notable works are multimodal face tracker, object detection, segmentation, and human pose estimation
- Microsoft Research** (Research Intern) May 2016 - Aug 2016
- Designed blur detection feature for burst photo selector
- Carnegie Robotics** (Capstone Student) Jan 2016 - Dec 2016
- Researched on pedestrian detector on Nvidia Jetson TK1
- Accenture** (Bus & Sys Integration Analyst) April 2014 - July 2014
- Migrated data for [Kasikorn Bank](#) (Thai 2<sup>nd</sup> largest bank)
- 9Pi** (Mobile & Web Developer) Nov 2013 - Jan 2014
- Developed a Student Information System for [TNI](#)
- Infosys** (Research Analyst Intern) Mar 2013 - Jun 2013
- Researched on blur detection and foreground detection on mobile captured document for [Finacle](#) bill payment
- Ecartstudio** (Data Analyst Intern) Nov 2012 - Dec 2012
- Designed data quality policy for geolocation database
- Mystrading** (Co-Founder) Nov 2011 - Aug 2015
- Implemented database system and automation tools for international trading on social media (200k+ followers)

## Publications

- PADCLIP: Pseudo-label with Adaptive Debias in CLIP** (ICCV 2023)
- An adaptive debiasing method to mitigate catastrophic forgetting in CLIP for unsupervised domain adaptation
- CRFace: Confidence Ranker for Face Detection** (CVPR 2021)
- A model-agnostic face detection refinement that achieves state-of-the-art single scale face detector
- JNR: Joint-based Neural Rig for 3D Face Modeling** (ECCV 2020)
- A new face model that achieves similar error, yet much more compact than FLAME, and support editing/accessorizing
- Personalized Face Modeling** (ECCV 2020, Spotlight)
- End-to-end unsupervised learning for personalized face model per user and per-frame facial motion
- ReDA: Reinforced Differentiable Attribute** (CVPR 2020, Oral)
- Improve differentiable renderer by incorporating more attributes, loss pyramid, and new rasterizer
- Face Detection and Facial Motion Retargeting** (CVPR 2019)
- Real-time multiple faces detection, reconstruction and retargeting based on a multiscale design of YOLO and 3DMM
- Real-time Burst Photo Selection** (TIP 2019)
- Real-time image quality ranking by local ordinal pairwise loss with feature augmentation from adversarial network
- Personalized Exposure Control** (TVCG 2018)
- A reinforcement learning approach for personalized real-time exposure control based on Markov Decision Process
- Compressed Models for Pedestrian Detection** (arXiv 2017)
- Real-time pedestrian detection by a combination of ACF feature and knowledge distillation on ResNet
- Optimization Method in Optical Flow** (arXiv 2016)
- Comparison of orders of optimization for Lucas-Kanade
- Stroke Lesions Segmentation in Diffusion MRI** (IEEE SCAP 2014)
- GrowCut adaptive threshold for stroke lesion segmentation
- Blur Detection in Mobile Captured Document** (IEEE ICIP 2013)
- Eigen decomposition for blur detection in mobile document

## Education

- Carnegie Mellon University** Aug 2015 - Dec 2016  
Master of Science in Computer Vision, Robotics Institute, GPA 4.07/4.33, Advisor [Prof. Kris Kitani](#)
- Chulalongkorn University** May 2010 - Apr 2014  
Summa Cum Laude in Bachelor of Computer Engineering, Major GPA 3.82/4.00, GPA 3.67/4.00

## Technical Skills

- Deep Learning** Training: (PyTorch, Keras, Tensorflow, Caffe), Deployment: (NNA/NPU, Tensorflow Lite, CoreML, ONNX)
- Languages/Libraries** Python, C++, Java (Android, Spring), Matlab, C#, Objective-C, Swift, Sql, Arduino, DeepSpeed, Horovod

## Awards

- 3<sup>rd</sup> place -- [Microsoft Hackathon 2017 \(Comix\)](#), [Thailand ICT Awards 2013](#) (Mouse Controller for Paralyzed Patient)
- 2<sup>nd</sup> nationally -- IEEEXtreme 24-Hour Global Programming Competition 2013 (57<sup>th</sup>/7500 globally), 2012 (43<sup>rd</sup>/1941 globally)
- 3 scholarships awarded by CAT Telecom, Office of the Civil Service Commission, Kasetsart University Saving & Credit Co-op