

## 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

- Microsoft** (Senior SDE) Feb 2017 - Present
- Shipped a face detector for [Face API](#) that achieves +10% AP on WiderFace and runs 2x faster than the past model. The architecture was searched by NAS and trained jointly across multiple tasks with large-scale pretrained dataset.
  - Shipped a 3D face tracker for [SwiftKey](#) that runs at 60 fps on Pixel 2. The tracker can reconstruct 3D mesh, retarget expression and pose to puppets, and can be used jointly with texture from GAN for virtual presence in [HoloLens](#).
  - Shipped a burst photo selector to [Pix](#) that can rank images from complex attributes (e.g., composition, eye close/open). This model was further compressed 4x (to 0.1MB) to shipped as a video summarizer for [Comix](#), and was retrained as a scene classifier for [Office Lens](#).
  - 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
- Designed and coordinated data migration project for [Kasikorn Bank](#) (Thailand 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

- 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 segmentation with adaptive threshold for stroke lesion segmentation for diffused weight MRI
- Blur Detection in Mobile Captured Document** (IEEE ICIP 2013)
- Eigen decomposition with foreground detection for blur detection in mobile captured document images

## Education

- Carnegie Mellon University** Aug 2015 - Dec 2016  
Master of Science in Computer Vision, Robotics Institute, GPA 4.07/4.00, 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: (Tensorflow Lite, CoreML, ONNX)
- Programming Languages** Python, C++, Java (Android, Spring), Matlab, C#, Objective-C, Swift, MySQL, Arduino

## Awards

- 3<sup>rd</sup> place -- [Microsoft OneWeek Hackathon 2017](#) (Automatic Comic Strip Generator from Video on Android)
- 3<sup>rd</sup> place -- [Thailand ICT Awards 2013](#) (Head-Controlled Mouse System for Paralyzed Patient)
- 2<sup>nd</sup> nationally -- IEEEExtreme 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