

# Fei Pan

Ph.D. Candidate, EE, KAIST

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## EDUCATION

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- **KAIST** Daejeon, South Korea  
*Ph.D. in Electrical Engineering; advised by Prof. In So Kweon* Mar 2018 - Jul 2023(*expected*)
- **KAIST** Daejeon, South Korea  
*M.S. in Electrical Engineering; advised by Prof. Chang D. Yoo* Mar 2016 - Feb 2018
- **Xidian University** Xi'An, China  
*B.S. in Telecommunications Engineering; GPA: 3.7/4.0 (top 1 among 43 students)* Aug 2011 - Jul 2015

## RESEARCH INTERESTS

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My research background is computer vision and machine learning. Specifically, I am interested in building machine learning algorithms for visual tasks with minimum human supervision. I have been working on some research topics including domain adaptation, semantic segmentation, and 3D motion prediction.

## RESEARCH

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- **Fei Pan**, Sohee Kim, Seokju Lee, In So Kweon. MODA: Domain Adaptive Video Segmentation with Self-Supervised Object Motion Understanding. Submitted to *IEEE / CVF Conference on Computer Vision and Pattern Recognition (CVPR)*, 2023.
- **Fei Pan**, Sungsu Heo, Seokju Lee, In So Kweon. ML-BPM: Multi-teacher Learning with Bidirectional Photometric Mixing for Open Compound Domain Adaptation in Semantic Segmentation. In *European Conference on Computer Vision (ECCV)*, 2022.
- **Fei Pan**, Francois Rameau, Junsik Kim, In So Kweon. Labeling Where Adapting Fails: Cross-Domain Semantic Segmentation with Point Supervision via Active Selection, In *arXiv preprint arXiv:2206.00181*, 2022.
- Seokju Lee, Francois Rameau, **Fei Pan**, In So Kweon. Attentive and Contrastive Learning for Joint Depth and Motion Field Estimation. In *IEEE International Conference on Computer Vision (ICCV)*, 2021.
- Inkyu Shin, Sanghyun Woo, **Fei Pan**, In So Kweon. Two-phase Pseudo Label Densification for Self-training based Domain Adaptation. In *European Conference on Computer Vision (ECCV)*, 2020.
- **Fei Pan**, Inkyu Shin, Francois Rameau, Seokju Lee, In So Kweon. Unsupervised Intra-domain Adaptation for Semantic Segmentation through Self-Supervision. In *IEEE / CVF Conference on Computer Vision and Pattern Recognition (CVPR)*, 2020. (*oral, accept rate < 3%, Qualcomm Innovation Fellowship 2020 Winner*)
- Junsik Kim, Tae-Hyun Oh, Seokju Lee, **Fei Pan**, In So Kweon. Variational Prototyping-Encoder: One-Shot Learning with Prototypical Images. In *IEEE / CVF Conference on Computer Vision and Pattern Recognition (CVPR)*, 2019.
- **Fei Pan**, Chang D. Yoo. Deep Recursive Segmentation Networks. Master's Thesis at Korea Advanced Institute of Science and Technology, 2018.
- Sanghyuk Park, **Fei Pan**, Sunghun Kang, and Chang D. Yoo. Driver Drowsiness Detection System Based on Feature Representation Learning Using Various Deep Networks. In *Asian Conference on Computer Vision (ACCV) Workshop on Driver Drowsiness Detection from Video*, 2016.

## PROJECTS

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- **Domain Adaptive Vehicle Detection from CCTV Views** funded by Robert Bosch GmbH  
*Team Leader* May 2021 - Nov 2021
  - I am sponsored by Bosch to research on new frameworks and algorithms for domain adaptation in different utilization environments with fusion of multiple visual data. My job is develop a new framework of domain adaptation for multiple perception tasks in driving scenes; specifically focus on vehicle detection from CCTV views in road scenes, considering the domain gaps among multiple cameras and diverse weather conditions.
- **Robert Bosch – KAIST Smart Car Project: SeeAnything** funded by Robert Bosch GmbH  
*Team Member* Jun 2018 - Present

- The goal of this project is to develop novel technologies toward collaboration between CCTV cameras and multiple connected vehicles. My job is to extract static background using background subtraction algorithms; to build a deep neural network-based road marks segmentation model; and to build a person re-identification module.

- **Highly Accurate Saliency Detection System** funded by Mirero System Co., Ltd  
*Team Member* *Mar 2017 - Nov 2017*
  - The goal of this project is to develop a saliency detection system of high accuracy on benchmark datasets. My job is to build a end-to-end deep neural network-based model for saliency detection.
- **Driver Assistant Active Safety System** funded by National Core Research Center of South Korea  
*Team Member* *April 2016 - Feb 2017*
  - The goal of this project is to build a high-performance vision algorithm of active safety driver assistance systems. My job is to participate in creating drowsiness labeling dataset; to build a deep neural network-based architecture for drowsiness detection.

## EXPERIENCE

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- **Robert Bosch GmbH** *remote*  
*Research Intern* *May 2021 - Nov 2021*
- **KAIST Robotics and Computer Vision Lab** Daejeon, South Korea  
*Research Assistant* *Feb 2018 - May 2023*
- **KAIST Artificial Intelligence & Machine Learning Lab** Daejeon, South Korea  
*Research Assistant* *Feb 2016 - Jan 2018*
- **KAIST Artificial Intelligence & Machine Learning Lab** Daejeon, South Korea  
*Research Intern* *Jul 2015 - Feb 2016*

## SKILLS

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- **Prog. Lang.:** Python, Matlab, C/C++, HTML, L<sup>A</sup>T<sub>E</sub>X, Markdown.
- **Deep Learning:** Pytorch, Tensorflow, Keras.
- **Library:** Numpy, Scipy, Scikit-learn, OpenCV, Matplotlib.

## HONORS

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- **Qualcomm Innovation Fellowship** (KRW ₩4,000,000 ), Qualcomm, 2020.
- **Robert Bosch PhD Program Scholarship** (EUR €22000 per year), Robert Bosch GmbH, 2019 - 2021.
- **KAIST Scholarship** (full scholarship for Master's and Ph.D. Program), KAIST, 2016 - 2022.
- **Outstanding Graduate Award**, Xidian University, 2015.
- **Shenzhen Goodix Technology Scholarship** (RMB ¥5000), Goodix Technology Co., Ltd., 2015.
- **National Scholarship** (RMB ¥8000 per year), Ministry of Education of P.R. China, 2012, 2013, 2014.

## REVIEWER EXPERIENCES

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- NeurIPS 2020, CVPR 2020, CVPR 2021, WACV 2021, WACV 2022.
- Neurocomputing, Pattern Recognition Letters.

## LANGUAGE

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- **English:** Professional Proficiency
- **Chinese:** Native Proficiency
- **Korean:** Beginner