Fei Pan

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Employment

- **University of Michigan** — Ann Arbor, United States
  Research Fellow — *Incoming*

Job description:
The duties of this position include investigation of fundamental research topics that elucidate how perception and semantic understanding can merge from interactions and self-exploration with little external supervision, collaboration with junior researchers in the group in preparation of technical papers and related reports, and mentoring and supervising undergraduate and graduate students engaged in research activities.

Education

- **KAIST** — Daejeon, South Korea
  Ph.D. in Electrical Engineering; advised by Prof. In So Kweon — *Mar 2018 - Aug 2023*
- **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

Domain adaptation and transfer learning, semantic perception and understanding, geometric motion and depth prediction.

Research

- **Fei Pan**, Xu Yin, Seokju Lee, Sungeui Yoon, In So Kweon. Leveraging Motion Priors from Videos for Advancing Unsupervised Domain Adaptation in Semantic Segmentation. In *submission to IEEE Transactions on Image Processing*, 2023.
- Xu Yin, Woobin Im, Dongbo Min, Yuchi Huo, **Fei Pan**, Sungeui Yoon. Fine-grained Background Representation for Weakly Supervised Semantic Segmentation. In *submission to IEEE Transactions on Multimedia*, 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**, Framcois 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)*
- 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

- **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 - Dec 2022*
  - 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.

Research Experience

- **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

- **Prog. Lang.**: Python, Matlab, C/C++, HTML, LaTeX, Markdown.
- **Deep Learning**: Pytorch, Tensorflow, Keras.
- **Library**: Numpy, Scipy, Scikit-learn, OpenCV, Matplotlib.

Honors

- **Qualcomm Innovation Fellowship** (KRW ₩4,000,000), Qualcomm Inc., 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.

Reviewer Experiences

- Conference: CVPR, NeurIPS, ECCV, ICCV, WACV.
- Journal: Neurocomputing, Pattern Recognition Letters.

Language

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