Curriculum Vitae

Jae Shin Yoon

Room 237, Shepard Laboratory

100 Union Street SE

Minneapolis, MN 55455

Email: jsyoon@umn.edu

Home: cs.umn.edu/~jsyoon

EDUCATION

- **Ph.D. University of Minnesota (UMN), USA**   2017 - present
    - Major: Computer Science and Engineering
    - Human Behavioral Imaging from a Monocular Camera
    - Analysis and Synthesis of Non-Rigid Dynamic Scenes using a Monocular Camera
    - Area of study: computer vision, machine learning, graphics, and robotics
    - Advisor: Prof. Hyun Soo Park

- **M.S. Korea Advanced Institute of Science and Technology (KAIST), Korea**   2015 - 2017
    - Major: Robotics Engineering
    - Video Object Segmentation using Convolutional Neural Networks
    - Area of study: computer vision, machine learning, and robotics
    - Advisor: Prof. In So Kweon

- **B.E. Hanyang University, Korea**   2009 - 2015
    - Major: Electrical Engineering
    - Advisor: Prof. Yong Ho Song
    - Military service   2010 - 2011

- **Exchange Student. Kobe University, Japan**   2012

INTERNSHIP

- **MPI Graphics and Vision Video Lab, Saarland, Germany**   2020/09 - 2021/01
    - Advisor: Prof. Christian Theobalt
    - Collaborator: Dr. Lingjie Liu, Dr. Vladislav Golyanik, Dr. Kripasindhu Sarkar
    - Project: Building generative models for human in arbitrary clothing from a single image.
      :: Developed an AI model that can generate human animation from a single image by learning synthetic human data.
      :: Designed a novel compositional neural networks to predict silhouette, garment labels, and appearance of in-the-wild human in arbitrary body poses using a single image.
      :: Related publication: "*Pose-Guided Human Animation from a Single Image in the Wild*" (**CVPR 2021**)

- **NVIDIA Learning and Perception Research group, Santa Clara, USA**   2019/02 - 2019/08
    - Mentor: Dr. Kihwan Kim, Director: Dr. Jan Kautz, Collaborator: Dr. Orazio Gallo
    - Project 1: Novel view synthesis of dynamic scene
      :: Developed a pipeline and neural network that can synthesize an event at an arbitrary time and view given a set of image collection of a dynamic event captured from a monocular camera.
      :: Related publication: "*Novel View Synthesis of Dynamic Scenes with Globally Coherent Depths from a Monocular Camera*" (**CVPR 2020**)
    - Project 2: Neural Cloth Retargeting from a Single Image
      :: Developed a neural network that can predict a plausible 3D cloth deformation from a single image.

:: Related publication: *"Neural 3D Clothes Retargeting from a Single Image"* (**Arxiv**)

- **Facebook Reality Labs, Pittsburgh, USA**   2018/06 - 2018/08
  - Mentors: Dr. Takaaki Shiratori, Dr.Shoou-I Yu
  - Researched a learning-based graphics algorithm for 3D face rendering.
    :: Developed monocular 3D face tracking using a convolutional neural network.
    :: Self-supervised domain adaptation from controlled laboratory condition to real-world scenes.
    :: Related publication: "*Self-Supervised Adaptation of High-Fidelity Face Models for Monocular Performance Tracking"* (**CVPR 2019 [oral]**)

- **Korea Institute of Science and Technology (KIST), Korea**   2017/03 - 2017/08
  - Mentor: Dr. Hwasup Lim, Director: Dr. Sang Chul Ahn
  - Developed a computer vision algorithm, especially focusing on 3D model texturing.
    :: MRF based face-aware 3D model texturing for natural face textures
    :: Poisson based graph-wise inpainting for texture hole filling
    :: High-resolution image registration to low-resolution Kinect image using perspective n points

COLLABORATION

- **Intel Labs, Santa Clara, USA**   2018/03 - 2019/12
  - Build a large-scale human multiview dataset for human body expression with natural clothing.
  - 107 synchronized HD cameras captured 772 distinctive subjects across ethnicity, age, and style.
  - Collaborator: Prof. Jaesik Park
  - Related publication: "*HUMBI 1.0: Human Multiview Behavioral Imaging Dataset"* (**CVPR 2020**)

- **Samsung Electronics, Korea**   2016/01 - 2017/02
  - Detect, segment and classify the lane, traffic sign, road marking, and vanishing point with deep multi-tasking network for autonomous driving.
  - Related publication: "*VPGNet: Vanishing Point Guided Network for Lane and Road Marking Detection and Recognition*" (**ICCV 2017**)

TEACHING

- CSCI 5611, Computer Vision Teaching Assistant at **UMN**   2020/01 - 2020/05
- CSCI 2033, Linear Algebra Teaching Assistant at **UMN**   2017/09 - 2017/12
- RE510, Robotics Experiment Teaching Assistant at **KAIST**   2016/03 - 2016/06

PUBLICATION

- **International Publication**
  - **Jae Shin Yoon,** Lingjie Liu, Vladislav Golyanik, Kripasindhu Sarkar, Hyun Soo Park, and Christian Theobalt. "Pose-Guided Human Animation from a Single Image in the Wild", *IEEE Computer Vision and Pattern Recognition* (**CVPR 2021**)

  - **Jae Shin Yoon,** Kihwan Kim, Orazio Gallo, Hyun Soo Park, and Jan Kautz. "Novel View Synthesis of Dynamic Scenes with Globally Coherent Depths from a Monocular Camera", *IEEE Computer Vision and Pattern Recognition* (**CVPR 2020**)

  - *Zhixuan Yu, **Jae Shin Yoon**, Prashanth Venkatesh, Jaesik Park, Jihun Yu, and Hyun Soo Park. "HUMBI 1.0: Human Multiview Behavioral Imaging Dataset", *IEEE Computer Vision and Pattern Recognition* (**CVPR 2020**) (*indicates joint first author)

- **Jae Shin Yoon**, Takaaki Shiratori, Shoou-I Yu, and Hyun Soo Park. "Self-Supervised Adaptation of High-Fidelity Face Models for Monocular Performance Tracking", *IEEE Computer Vision and Pattern Recognition* **(CVPR 2019) [oral presentation]**

- **Jae Shin Yoon**, Ziwei Li, Hyun Soo Park. "3D Semantic Trajectory Reconstruction from 3D Pixel Continuum", *IEEE Computer Vision and Pattern Recognition* **(CVPR 2018)**

- Yukyung Choi, Namil Kim, Soonmin Hwang, Kibaek Park, **Jae Shin Yoon** and In So Kweon. "KAIST Multi-spectral Day/Night Dataset for Autonomous and Assisted Driving", *Transaction on Intelligent Transportation System* **(T-ITS)**

- **Jae Shin Yoon**, Francois Rameau, Junsik Kim, Seokju Lee, Seunghak Shin and In So Kweon. "Pixel-Level Matching for Video Object Segmentation using Convolutional Neural Networks" *IEEE International Conference on Computer Vision* **(ICCV 2017)**

- Seokju Lee, Junsik Kim, **Jae Shin Yoon**, Seunghak Shin, Oleksandr Bailo, Namil Kim, Tae-hee Lee, Hyun Seok Hong, Seung-Hoon Han, and In So Kweon. "VPGNet: Vanishing Point Guided Network for Lane and Road Marking Detection and Recognition" *IEEE International Conference on Computer Vision* **(ICCV 2017)**

- Oleksandr Bailo, Seokju Lee, Francois Rameau, **Jae Shin Yoon**, and In So Kweon. "Robust Road Marking Detection and Recognition using Density-Based Grouping and Machine Learning Techniques." *IEEE Winter Conference on Applications of Computer Vision* **(WACV 2017)**

- **Jae Shin Yoon**, Kibaek Park, Soonmin Hwang, Namil Kim, Yukyung Choi, Francois Rameau and In So Kweon. "Thermal-Infrared based Drivable Region Detection", *IEEE Intelligent Vehicle Symposium* **(IV 2016)**.

- Yukyung Choi, Namil Kim, Kibaek Park, Soonmin Hwang, **Jae Shin Yoon** and In So Kweon "All-Day Visual Place Recognition: Benchmark Dataset and Baseline", *IEEE Computer Vision and Pattern Recognition Workshop 2015 on Visual Place Recognition in Changing Environments* **(CVPR-VPRICE 2015)**

- Soonmin Hwang, Yukyung Choi, Namil Kim, Kibaek Park, **Jae Shin Yoon** and In so Kweon "Low-Cost Synchronization for Multispectral Cameras", *IEEE International Conference on Ubiquitous Robots and Ambient Intelligence* **(URAI 2015)**

- Namil Kim, Yukyung Choi, Soonmin Hwang, Kibaek Park, **Jae Shin Yoon** and In So Kweon "Geometrical calibration of multispectral calibration", *IEEE International Conference on Ubiquitous Robots and Ambient Intelligence* **(URAI 2015)**

- **Technical Report**
  - **Jae Shin Yoon,** Lingjie Liu, Vladislav Golyanik, Kripasindhu Sarkar, Hyun Soo Park, and Christian Theobalt, "Pose-Guided Human Animation from a Single Image in the Wild.", **Arxiv** 2021.

  - **Jae Shin Yoon**, Kihwan Kim, Jan Kautz, and Hyun Soo Park "Neural 3D Clothes Retargeting from a Single Image.", **Arxiv** 2021.

- **Domestic Publication**
  - **Jae Shin Yoon**, Donghyeon Cho, Kibeak Park, Jinsun Park and In So Kweon "Video Stabilization using Spline based Ideal path" *28th Workshop on Image Processing and Image Understanding* **(IPIU)**, Feb 2016

INVITED TALK

- **Novel View Synthesis from Dynamic Scenes**
  - CVPR Tutorial on Novel View Synthesis: From Depth-Based Warping to Multi-Plane Images and Beyond [Link, Slide] — 2020
  - CVPR Workshop on 3D Scene Understanding for Vision, Graphics, and Robotics [Link] — 2020
- **Self-Supervised Adaptation of High-Fidelity Face Models from Monocular Video**
  - CVPR oral presentation — 2019
  - Think Tank Team at Samsung Research America in Mountain View, hosted by Dr. Abhijit Bendale — 2019
  - UofM 50th Anniversary Research Showcase (poster) — 2019
- **3D Human Behavioral Imaging**
  - University of Minnesota (UMN) Graduate Research and Discussion Seminars (GRaDS) — 2019
  - Seoul National University (SNU) Vision Seminar, hosted by Prof. Bohyung Han — 2019
  - Pohang University of Science and Technology (POSTECH) Computer Vision group hosted by Prof. Minsu Cho — 2019
  - Korea Institute of Science and Technology (KIST), hosted by Dr. Hwasup Lim — 2019
- **3D Semantic Trajectory Reconstruction from 3D Pixel Continuum**
  - Amazon Graduate Research Symposium (poster) — 2019
  - University of Minnesota VCAI Seminar — 2018
- **Semantics on the Road for All-day Autonomous Driving** — 2018
  - Hyundai Top Talent Forum

PROFESSIONAL SERVICE

- **Reviewer**
  - *Computer Vision and Pattern Recognition* (**CVPR**) IEEE | 2018, 2019, 2020
  - *European Conference on Computer Vision* (**ECCV**) IEEE | 2020
  - *International Conference on Computer Vision* (**ICCV**) IEEE | 2019, 2021
  - *Eurographics Computer Graphics Forum* (**CGF**) | 2021
  - *Conference on Artificial Intelligence* (**AAAI**) | 2020, 2021
  - *Winter Conference on Applications of Computer Vision* (**WACV**) IEEE | 2020, 2021
  - *Neural Information Processing Systems* (**NeurIPS**), Workshop on Self-Supervised Learning: Theory and Practice | 2021
  - *Asian Conference on Computer Vision* (**ACCV**) IEEE | 2018
  - *Intelligent Vehicle Symposium* (**IV**) IEEE | 2016
  - *Autonomous Robots*, 2020
  - *Transaction on Multimedia* IEEE, 2018
  - *Geoscience and Remote Sensing Letters*, 2019

HONORS & AWARDS

- Top Graduate Research Award, UofM Graduate Research and Discussion Seminar — 2019
- Summa Cum Laude, Hanyang University (**GPA**: 4.08/4.5) (94.6 %) — 2015/02
- Scholarship, Hanyang Brain scholarship ($1,440) — 2014
- Prize for the top first percentile GPA, Hanyang University ($3,740) — 2013/09
- Miraeasset Park Hyeon-Joo foundation scholarship for exchange student ($8,565) — 2012
- Qualcomm Scholarship for outstanding engineer, Qualcomm corp ($3,740) — 2011

OTHER SKILL

- **Language**
  - Korean, English, Japanese
- **Programming Language**
  - C, C++, MATLAB, Python, LaTex