Curriculum Vitæ

Dr. François Rameau, Research Associate Professor

KAIST RCVlab

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Research Interests (Computer vision and Robotics): Deep-Learning, Visual-SLAM, connected vehicle, augmented reality, real-time system.

Education

2016–present	**Research Professor** KAIST RCV, South-Korea, KRF fellowship
2014–2015	**Post-doctoral researcher** KAIST RCV, South-Korea
2011–2014	**Doctor of Philosophy** advised by Profs. David Fofi and Cédric Demonceaux Université de Bourgogne, Le2i (CNRS), France. Dissertation: *Hybrid foveated vision system for video surveillance and robotic navigation*
2010–2011	**Master 2 - VIBOT** advised by Prof. Demonceaux International master of excellence: Erasmus Mundus Université de Bourgogne, Le2i (CNRS), France. Thesis: *Visual Tracking Using Catadrioptic Sensors*.
2009–2010	**Master 1 - Electronic and Signal Processing** Université de Bourgogne, France
2006–2009	**Bachelor of engineering - Electronic and Signal Processing** Université de Bourgogne, France

Awards & Honors

Press	**Interviewed by Nature** "Naturejobs Career Guide Asia-Pacific 2016, South-Korea", Mark Zastrow. **Reportage by KBS1 news** on our connected car project (one of the biggest Korean TV channel). **Other medias** covering my work: Etnews, Leiphone (Chinese news), local journals (France).
2021	**Outstanding reviewer award,** CVPR 2021
2021	**Top** 25% **program committee member,** AAAI 2021
Fall 2019	**Best teaching award** "course: Perception for autonomous and connected" vehicle Division of Future Vehicle (KAIST)
Jan. 2019	**IWRCV 2019 Best poster award** "Collaborative Localization of a Swarm of Vehicles and Semantic Mapping"
Feb. 2018	**IW-FCV2018 Best demo award** "Demonstration of Collaborative Localization of a Swarm of Connected Vehicles"
2016 – 20	**Korea Research Post-doctoral Fellowship (KRF)**
Sep. 2016	**ISMAR 2016**: Selected among Top10 best paper
2011 – 15	**DGA (Research Defense - France)** Thesis Funding
2010 – 11	**Merit based grant** dedicated to students in research Master's degree (Burgundy region)
2009 – 10	**French merit-based scholarship** (top 10%)
2009 – 10	**Ranked** 1^{st} among Master 1 ESP students
2008 – 09	**Ranked** 2^{nd} among bachelor ESP students

Publications

Book Chapter

[1] **François RAMEAU**, In So KWEON, "Deep-learning based 3D vision", *Computer Vision: A reference guide*, Katsushi Ikeuchi, Springer, 2020.

International Journal

[1] **François RAMEAU**, Jaesung CHOE, Fei PAN, Seoku LEE, and In So KWEON "CCTV-Calib: a Toolbox to Calibrate Surveillance Cameras Around the Globe", *IEEE/CAA Journal of Automatica Sinica*, 2022 (under review).

[2] Yannick HOLD-GEOFFROY, Dominique PICHE-MEUNIER, Kalyan SUNKAVALLI, Jean-Charles BAZIN, **François RAMEAU**, and Jean-François LALONDE "A Deep Perceptual Measure for Lens and Camera Calibration", *IEEE Transactions on Pattern Analysis and Machine Intelligence*, 2022 (under review).

[3] Seokju LEE, **François RAMEAU**, Sunghoon IM, and In So KWEON, "Self-supervised Monocular Depth and Motion Learning in Dynamic Scenes: Semantic Prior to Rescues", *International Journal of Computer Vision*, 2022 (under minor revision).

[4] **François RAMEAU**, Jinsun PARK, Oleksandr BAILO, and In So KWEON, "MC-Calib: a generic and robust calibration toolbox for multi-camera systems", *Computer Vision and Image Understanding*, 2022.

[5] **François RAMEAU**, Oleksandr BAILO, JinSun PARK, Kyungdon JOO and In So KWEON, "Real-time localization of a swarm of cars and application to multi-car see-through", *International Journal of Computer Vision*, 2022.

[6] Hae-Gon JEON, Sunghoon IM, Byeong-Uk LEE, **François RAMEAU**, Dong-Geol CHOI, Jean OH, In So KWEON, and Martial HEBERT, "A Large-scale Virtual Dataset and Egocentric Localization for Disaster Responses", *IEEE Transactions on Pattern Analysis and Machine Intelligence*, 2021.

[7] Tetiana PARSHAKOVA, **François RAMEAU**, In So KWEON and Dae-Shik KIM, "Latent Question Interpretation Through Parameter Adaptation Using Stochastic Neuron", *IEEE/ACM Transactions on Audio, Speech, and Language Processing*, 2019.

[8] Oleksandr BAILO, **François RAMEAU**, Kyungdon JOO, Jinsun PARK, Oleksandr BOGDAN and In So KWEON, "Efficient adaptative non-maximal suppression algorithms for homogeneous spatial keypoint distribution", *Pattern Recognition Letters (PRL)*, 2018.

[9] **François RAMEAU**, Hyowon HA, Kyungdon JOO, Jinsoo CHOI, Kibaek PARK and In So KWEON, "A Real-time Augmented Reality System to See-Through Cars", *IEEE Transactions on Visualization and Computer Graphics (TVCG)*, November 2016.

[10] **François RAMEAU**, Désiré SIDIBE, Cédric DEMONCEAUX, David FOFI, "Visual Tracking with Omnidirectional Cameras : An Efficient Approach", IET Electronics Letters, October 2011.

International Conference

[1] Jaesung CHOE, Chunghyun PARK, **François RAMEAU**, Jaesik PARK, In So KWEON, "PointMixer: MLP-Mixer for Point Cloud Understanding", *CVPR*, 2022. (submitted).

[2] Fei PAN, Sungsu HUR, **François RAMEAU**, Junsik KIM, In So KWEON, "Photometric Mixing Multi-expert Learning for Adaptive Semantic Segmentation in Compound and Open Domain", *CVPR*, 2022. (submitted).

[3] Jaesung CHOE, Byeongin JOUNG, **François RAMEAU**, Jaesik PARK, In So KWEON, "Deep Point Cloud Reconstruction", *ICLR*, 2022.

[4] Seokju LEE, **François RAMEAU**, Fei PAN, In So KWEON, "Attentive and Contrastive Learning for Joint Depth and Motion Field Estimation", *ICCV*, 2021.

[5] Jaesung CHOE, Sunghoon IM, **François RAMEAU**, In So KWEON, "VolumeFusion: Deep Depth Fusion for 3D Scene Reconstruction", *ICCV*, 2021.

[11] Jaesung CHOE, Kyungdon JOO, **François RAMEAU**, In So KWEON, "Stereo Object Matching", *ICRA*, 2021.

[6] Dawit MUREJA, Junsik KIM, **François RAMEAU**, Chaoning ZHANG, In So KWEON, "Optical flow from single motion blur image", *AAAI*, 2021.

[7] Dawit MUREJA, Junsik KIM, **François RAMEAU**, Chaoning ZHANG, In So KWEON, "Motion-blurred Video Interpolation and Extrapolation", *AAAI*, 2021.

[8] Chaoning ZHANG, **François RAMEAU**, Seokju LEE, Junsik KIM, Philipp BENZ, Dawit MUREJA, Jean-Charles BAZIN, In So KWEON, "ResNet or DenseNet: Dense shortcut might be a better solution", *WACV*, 2021.

[9] Fei PAN, InKyu SHIN, **François RAMEAU**, Seokju LEE, In So KWEON, "Unsupervised Intra-domain Adaptation for Semantic Segmentation through Self-Supervision", *CVPR*, 2020. *(oral, accept rate < 3%)*

[10] Kyungdon JOO, Tae-Hyun OH, **François RAMEAU**, In So KWEON, "Linear RGB-D SLAM for Atlanta World", *International Conference on Robotics and Automation (ICRA)*, 2020.

[11] Chaoning ZHANG, **François RAMEAU**, Junsik KIM, Dawit MUREJA, In So KWEON, "Deep Calibration for Rotating and Zooming Camera", *Winter Conference on Applications of Computer Vision (WACV)*, 2020.

[12] Donghyeon CHO, YunJae JUNG, **François RAMEAU**, In So KWEON, "Video Retargeting: Trade-off between Content Preservation and Spatio-temporal Consistency", *ACM Multimedia (ACMM)*, 2019.

[13] Chaoning ZHANG, **François RAMEAU**, Seokju LEE, Junsik KIM, Philipp BENZ, Dawit MUREJA, Jean-Charles BAZIN, In So KWEON, "RGS-ResNet: Boosting Residual Networks with Nonlinear Shortcut", *British Machine Vision Conference (BMVC)*, 2019.

[14] Uk Cheol SHIN, Jinsun PARK, GyuMin SHIM, **François RAMEAU**, In So KWEON, "Camera Exposure Control for Robust Robot Vision with Noise-Aware Image Quality Assessment", *International Conference on Intelligent Robots (IROS)*, 2019.

[15] Jinsun PARK, Ukcheol SHIN, Gyumin SHIM, Kyungdon JOO, **François RAMEAU**, Junhyeok KIM, Dong-Geol CHOI, In So KWEON, "Vehicular Multi-Camera Sensor System for Automated Visual Inspection of Electric Power Distribution Equipment", *International Conference on Intelligent Robots (IROS)*, 2019.

[16] Jaesung CHOE, Kyungdon JOO, **François RAMEAU**, In So KWEON, "Segment2Regress: Real-Time Monocular 3D Object Localization in Two Stages", *Robotics: Science and Systems (RSS)*, 2019.

[17] Oleksandr BOGDAN, Viktor ECKSTEIN, **François RAMEAU**, Jean-Charles BAZIN, "A Deep Learning Approach for Automatic Calibration of Wide Field-of-View Cameras", *SIGGRAPH European Conference on Visual Media Production (CVMP)*, December 2018.

[18] Oleksandr BOGDAN, Oleg YURCHENKO, Oleksandr BAILO, **François RAMEAU**, Donggeun YOO, In So KWEON, "Intelligent Assistant for People with Low Vision Abilities", *Pacific Rim Symposium on Image and Video Technology (PSIVT)*, November 2017.

[19] Jae Shin YOON, **François 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)*, October 2017.

[20] Oleksandr BAILO , Seokju LEE , **François RAMEAU** , Jae Shin YOON , In So KWEON , "Robust Road Marking Detection and Recognition Using Density-Based Grouping and Machine Learning Techniques", *Winter Conference of Applications on Computer Vision (WACV)*, March 2017.

[21] Sunghoon IM, Hyowon HA, **François RAMEAU**, Hae-Gon JEON, Gyeongmin CHOE and In So KWEON , "All-around Depth from Small Motion with a Spherical Panoramic Camera", *European Conference on Computer Vision (ECCV)*, Oct 2016

[22] **François RAMEAU**, Hyowon HA, Kyungdon JOO, Jinsoo CHOI, Kibaek PARK and In So KWEON, "A Real-time Augmented Reality System to See-Through Cars", IEEE International Symposium on Mixed and Augmented Reality (ISMAR), Sep 2016. *(oral, Top 10 paper)*

[23] Jae Shin YOON, Kibaek PARK, Soonmin HWANG, Namil KIM, Yukyung CHOI, **François RAMEAU** and In So KWEON , "Thermal-Infrared based Drivable Region Detection", *IEEE Intelligent Vehicles Symposium (IV)*, June 2016.

[24] Hyowon HA, **François RAMEAU**, In So KWEON, "6-DOF Direct Homography Tracking with Extended Kalman Filter", *Pacific Rim Symposium on Image and Video Technology (PSIVT)*, Auckland (New Zealand), November 2015. *(oral)*

[25] Kibaek PARK, Hyowon HA, **François RAMEAU**, In So KWEON, "Fused robot pose estimation using embedded and external camera", *Ubiquitous Robots and Ambient Intelligence (URAI)*, October 2015.

[26] **François RAMEAU**, Désiré SIDIBE, Cédric DEMONCEAUX, David FOFI, "Structure from motion using a hybrid stereo-vision system", 12th international conference on Ubiquitous Robots and Ambient Intelligence (URAI), October 2015. *(oral)*

[27] **François RAMEAU**, Cédric DEMONCEAUX, Désiré SIDIBE, David FOFI, "Control of a PTZ Camera in a Hybrid Vision System", *Computer Vision Theory and Applications, Lisbon (VISAPP)*, January 2014. *(oral)*

[28] **François RAMEAU**, Adlane HABED, Cédric DEMONCEAUX, Désiré SIDIBE, David FOFI, "Self-Calibration of PTZ Camera using New LMI Constraints", *Asian Conference on Computer Vision (ACCV)*, November 2012.

International Workshop

[1] **François RAMEAU**, Oleksandr BAILO, JinSun PARK, Kyungdon JOO, Jaesung CHOE and In So KWEON. "Collaborative Localization of a swarm of Vehicles and Semantic Mapping" *International Workshop On Robust Computer Vision (IWRCV)*, January 2019. *(Best poster award)*

[2] **François RAMEAU**, Oleksandr BAILO, JinSun PARK, Kyungdon JOO, Jaesung CHOE and In So KWEON. "Real time Demonstration of Collaborative Localization of a Swarm of Connected Vehicles" *International Workshop on Frontiers of Computer Vision (IW-FCV)*, February 2018. *(Best demo award)*

[3] Jae Shin YOON, **François RAMEAU**, Junsik KIM, Seokju LEE, Seunghak SHIN and In So KWEON. "Pixel-Level Tracking using Convo-

lutional Neural Networks" *International Workshop On Robust Computer Vision (IWRCV)*, December 2017.

[4] **François RAMEAU**, Hyowon HA, Kyungdon JOO, Jinsoo CHOI and In So KWEON, "See-Through Cameras for connected cars", *International Workshop On Robust Computer Vision (IWRCV)*, December 2016.

[5] **François RAMEAU**, Hyowon HA, Kyungdon JOO, Jinsoo CHOI and In So KWEON, "A Real-time Vehicular Vision System to Seamlessly See-through Cars", ECCV Workshop - *Assistive Computer Vision and Robotics (ECCVW)*, Oct 2016.

[6] **François RAMEAU**, Désiré SIDIBE, Cédric DEMONCEAUX, David FOFI, "Tracking Moving Objects With a Catadioptric Sensor Using Particle Filter", *ICCVW (OMNIVIS'11)*, November 2011.

National Conference

[1] 주경돈, 하효원, 최진수, **François RAMEAU**, 권인소, "선행차량투시를위한실시간증강현실시스템연구" *2016*년도한국멀티미디어학회추계학술발표대회.

[2] **François RAMEAU**, Cédric DEMONCEAUX, Dro Désiré SIDIBE David FOFI, "étude d'un système de stéréo-vision hybride", *Congrès des jeunes chercheurs en vision par ordinateur (ORASIS)*, France, 2013.

[3] **François RAMEAU**, Dro Désiré SIDIBE, Cédric DEMONCEAUX, David FOFI, "Une approche performante de suivi visuel pour les caméras catadioptriques", *Reconnaissance des Formes et Intelligence Artificielle (RFIA)*, France, 2012.

Patents (US Patents only)

- Camera Calibration Method And Apparatus Based On Deep Learning, {US10977831B2}.

Teaching

2019–∼	**Perception for autonomous and connected vehicles**, Division of Future Vehicle, *KAIST*, fall semester. *(Department best teaching award 2019)*
2014–2015	**Numerical analysis**, International bachelor in Computer vision, *Université de Bourgogne*. *(Module coordinator: "Computer Aided Design")*
2012–2013	**Mathematics**, Bachelor GEII *IUT Le Creusot*. **Signal processing**, Bachelor MP *Université de Bourgogne*.
2011–2012	**Image Processing** Bachelor CIVA, *Le Creusot*. **Software engineering**, International Master 1 MsCV/VIBOT *Université de Bourgogne*.

Background

Prog. Lang.	C/C++, Matlab, Python, LaTeX
Library	OpenCV, ROS, Ceres, G2o, OpenVPN
Deep-learning	Pytorch, Docker
Optimization	Branch-and-Bound, Levenberg-Marquardt, Linear Matrix Inequality (LMI), Groebner Basis.
3D	SLAM, SfM, multi-view geometry, structured-light.
ETC.	Visual tracking, real-time processing, computational geometry, network.

Project Experience

Pandemic response robot and ICT convergence quarantine system development 2020 – present
funded by *NRF*

Goal: Creation of vision technologies for contact tracing in the context of pandemic.
Funding: 3 억원/year (total funding of the project)
My role: Co-PI.
Skills: localization and calibration modules
Impact: Large national project Partners: KIST, Miru System & SNUH

Look Ahead by Shared Sensing for Cooperative Cars 2014 – 2021
funded by *Robert Bosch GmbH*

Goal: Developing new technologies toward the collaboration between a swarm of vehicles (navigation, assisted driving and augmented reality).
Funding: 200,000 euros/year
My role: Main scientific contributor, team leader.
Skills: Real-time processing, Network, 3D reconstruction, Image processing, Robotics
Impact: Large media coverage, high potential for commercialization Partners: Bosch Germany & Bosch China

SSIM :Semantic & scalable indoor mapping 2019 – present
funded by *Naver Labs*

Goal: Exploring deep-learning approaches for Camera pose estimation and mapping.
Funding: 100,000,000 KRW/year
My role: Co-PI
Skills: Projective geometry, deep-learning for camera resectioning, minimal solvers (Groebner basis)
Partners: Naver Labs

Deep-Learning AI based face replacement technology 2019 – 2020
funded by *IITP*

Goal: Development of deep-learning based face replacement for the construction of realistic digital actors in modern film CG/VFX production.
Funding: 240,000,000 KRW/year (KAIST: 80,000,000 KRW & Digital Idea: 160,000,000 KRW)
My role: Principal Investigator
Skills: Deep-learning architecture for face alignment
Partners: Institute for Information & Communications Technology Promotion (IITP), Visual Computing & Artificial Intelligence Lab (KAIST) & Digital Idea

Academic Activities

- Co-organiser: IPIU 2019 - Tutorial on Vision-based localization.
- Senior program committee member: AAAI 2022
- Conference Reviewer: IROS, ICRA, IV, CVPR, ICCVW, AAAI, MIPR, ICCV, ECCV, ACCV, WACV.
- Journal Reviewer: TPAMI, IJCV, PR, TIP, RAL, TRO, TCI, IET CV, VR, Micromachines, Optics.
- Session chair: IROS 2019, URAI 2016, IWRCV 2017.
- Student volunteer of ORASIS 2013.
- Summer schools: Computer Vision and Intelligent Computer Systems (COMVICS), Brno (Czech Republic), 2013 and BMVA Summer School, Manchester, 2013.

Invited Talk

- **NRF, Global Research Network Seoul 2021**, Counselling session , Korea, Dec. 2021.
- **Seoul Mobility Show**, Computer vision for connected vehicle, Korea, Dec. 2021.
- **BOSCH**, Vehicle geo-localization from CCTV camera network, Germany, Dec. 2021.
- **IPIU**, Collaborative localization of a swarm of vehicles, Korea, 2019.
- **VIBOT**, Invited seminar for the European Master of excellence ERASMUS+ VIBOT-MAIA, France, 2017.
- **SIGGRAPH-ASIA**, "A Real-time Augmented Reality System to See-Through Cars", China, 2016.
- **Le2i, CNRS**, "Augmented reality for connected vehicle", France, 2016.
- **ARRC, KAIST**, "Real-time computer vision and augmented reality", Korea, 2016.
- **KRF**, Mentoring speech for the new KRF fellows, Korea, 2016.

Language

- **French**: Native proficiency.
- **English**: Full Professional Proficiency.
- **Korean**: Beginner.
- **Spanish**: Notion.

Hobbies

- Cinema, Hiking, Traveling, Reading, Cooking, Family time.

Extracurricular Activities

2011–2015	**Scientific popularization**, The experimentarium is a unique scientific popularization program in Europe, organizing meetings between researchers (from any field) and kids.
2011–2015	**Cultural activities**, Supervision of local cultures travels through the master Erasmus mundus Vibot/MsCV (Burgundy).
2013–2015	**Associative activities**, President of the Vibotians association (association dedicated to the Erasmus mundus program VIBOT students).

Referee (persons who I may ask reference letters)

Prof. In So Kweon, KEPCO chair professor, KAIST, South-Korea
E-mail: iskweon@kaist.ac.kr

Prof. Cedric Demonceaux, Full professor, Director of the research team VIBOT ERL CNRS 6000, Université de Bourgogne, France
E-mail: cedric.demonceaux@u-bourgogne.fr

Prof. David Fofi, Full professor, Deputy director of the LE2I and coordinator of the "VIBOT", Université de Bourgogne, France
E-mail: David.Fofi@u-bourgogne.fr