S. Mohammad Mostafavi I. - *Research Scientist* (The *blue-colored* texts are hyperlinks)

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Education

- Gwangju Institute of Science and Technology (**GIST**) - 2015 ~ 2021
  - Ph.D. in electrical engineering and computer science - South Korea, Gwangju
  - Doctoral Dissertation: Event-based vision: Image reconstruction, Super-resolution, Depth estimation
  - Advisors: Prof. Jonghyun Choi (GIST), and Prof. Kuk-Jin Yoon (KAIST)

- Hakim Sabzevari University - 2009 ~ 2011
  - M.Sc. in Electrical and electronics - Iran, Sabzevar
  - Thesis: Event-based vision: Image reconstruction, Super-resolution, Depth estimation
  - Advisors: Prof. Javad Haddadnia (Hakim Sabzevari Uni.), and Prof. Payman Moallem (Uni. of Esfahan)

Selected Experiences

- Lunit Inc. - **Research Scientist** (Jun. 2021 - Present) and **Team Leader** (Mar. 2023 - Present)
  - Oncology Model-Centric AI Research - Led a team of 3~4 members
  - Performance improvement for SCOPE (main product) and pharma-requested models
    - Cell detection and tissue segmentation models
    - Task forces Lead in 4 out of 8 model development periods
  - Establishment, persuasion, and development of further product-oriented research directions
    - Universal IHC models [A1], Sub-cellular models, WSI synthesis, and end-point mutations.
  - Sharing recent CV/ML trends in the form of study groups and weekly research seminars
  - Experienced multidisciplinary settings (pathologists, biomedical eng., product eng., business dev.)
    - SCOPE (IO, PD-L1, HER2) and pharma-requested models, abstracts [A1~A4], Journals [J3, J4].

- GIST - **Research Assistant** and **Ph.D. student** (Sep. 2015 - Jun. 2021)
  - Supervised by Prof. Jonghyun Choi - *Gwangju Institue of Science & Technology* (GIST)
  - Co-supervised by Prof. Kuk-Jin Yoon - *Korea Advanced Institue of Science & Technology* (KAIST)
  - Proposed novel deep learning approaches on the event-based vision for image reconstruction [J1, C3], super-resolution [J2, C4], and depth estimation [C1, C2].
  - Published top-tier journals (TPAMI/IJCV [J1, J2]) and conferences (CVPR/IJCV [C1~C4], **1 oral CVPR** [C3])
  - Mentoring a master's student, resulting in a CVPR paper [C1]
  - Reaching **Rank #1** in the CVPRW Event-based Vision Competition (2021)
  - Contributed to the research community by releasing 2 code repos on GitHub from papers
    - https://github.com/gistvision/e2sri ★ **50** [C3] (as of Feb 3, 2024)
    - https://github.com/yonseivnl/se-cff ★ **32** [C1] (as of Feb 3, 2024)
  - Affiliations:
    - *Visual Intelligence Lab* - *Prof. Kuk-Jin Yoon* - *KAIST* - Spring 2017 - Winter 2019
    - *Computer Vision Lab* - *Prof. Jonghyun Choi* - *GIST* - Spring 2019- Fall 2021
    - *Visual Communications Lab* - *Prof. Yo-Sung Ho* - *GIST* - Fall 2015 - Spring 2018

- Others
  - Esfahan Petrochemical Company - Instrumentation supervisor (Spring 2013 - Fall 2015)

- Isfahan University of Technology (IUT) - Researcher (Fall 2012 - Spring 2013), Subsea R&D center
- Islamic Azad University, Mobarakeh Branch - Instructor (2011 and 2013)

Selected Publications - * indicates equal contribution across the marked authors.

Full list at https://scholar.google.com/citations?user=NNvELCcAAAAJ - No. of citations: 369 and h-index: 8 as of Feb 3, 2024

Conferences *on Computer Vision / Machine Learning*

- **[C1]** "*Stereo Depth from Event Cameras: Concentrate and Focus on the Future*"- Y Nam*, **M Mostafavi***, KJ Yoon, JH Choi - CVF/IEEE - **CVPR 2022** (**25.33**% accept. rate) **[Code]**
- **[C2]** "*Event-Intensity Stereo: Estimating Depth by the Best of Both Worlds*"- **M Mostafavi**, KJ Yoon, J Choi - CVF/IEEE - **ICCV 2021** (**25.9**% accept. rate)
- **[C3]** 🏆 "*Learning to Super Resolve Intensity Images from Events*" - **M Mostafavi**, J Choi, KJ Yoon - CVF/IEEE - **CVPR 2020** (**5%** accept. rate) **[Oral][Code]**
- **[C4]** "*Event-based high dynamic range image and very high frame rate video generation using conditional generative adversarial networks*"- L Wang*, **M Mostafavi***, YS Ho, and KJ Yoon -*equal contribution CVF/IEEE - **CVPR 2019** (**25.2%** accept. rate)

Journals

on Computer Vision / Machine Learning

- **[J1]** 🏆 "*E2SRI: Learning to Super-Resolve Intensity Images from Events*" - **M Mostafavi**, J Choi, KJ Yoon - IEEE-Transactions on Pattern Analysis and Machine Intelligence - **TPAMI 2021** (IF **24.31**)
- **[J2]** "*Learning to reconstruct HDR images from events, with applications to depth and flow*" - **M Mostafavi**, L Wang, KJ Yoon - Springer- International Journal of Computer Vision - **IJCV 2021** (IF **11.54**)

on AI-assisted oncology and Computational Pathology

- **[J3]** "*Artificial intelligence-powered spatial analysis of tumor-infiltrating lymphocytes as a predictive biomarker for axitinib in adenoid cystic carcinoma*" - DH Kim, Y Lim, C-Y Ock, G Park, S Park, H Song, M Ma, **M Mostafavi**, EJ Kang, M-J Ahn, K-W Lee, JH Kwon, Y Yang, YH Choi, MK Kim, JH Ji, T Yun, S-B Kim, B Keam- **Head & Neck 2023** (IF **2.9**)
- **[J4]** "*Artificial intelligence-powered whole-slide image analyzer reveals a distinctive distribution of tumor-infiltrating lymphocytes in neuroendocrine neoplasms*" - HG Cho, SI Cho, S Choi, W Jung, J Shin, G Park, J Moon, M Ma, H Song, **M Mostafavi**, M Kang, S Pereira, K Paeng, D Yoo, CY Ock, S Kim - **MDPI Diagnostics 2022** (IF **3.99**)

Abstracts *on AI-assisted oncology and Computational Pathology*

- **[A1]** 🏆 "*Universal immunohistochemistry positivity classification of cancer cells across multiple cancer types and antibodies using artificial intelligence*" - B Brattoli*, **M Mostafavi***, S Choi, T Lee, S Kim, W Jung, SI Cho, J Lee, K Chung, J Ryu, S Park, S Pereira, S Shin, CY Ock - **AACR** Annual Meeting Abstracts **2023**
- **[A2]** "*1293 Fragmented pattern of tumor mass is related to fibroblast activation mitigating spatial interaction between tumor and immune cells* " - S Kim, S Song, S Kim, M Kang, **M Mostafavi**, D Yoo, CH Ahn, S Ali, C-Y Ock- **SITC** Meeting Abstracts **2023**
- **[A3]** "*123P Artificial intelligence (AI)-powered analysis of human epidermal growth factor receptor-2 (HER2) and tumor-infiltrating lymphocytes (TILs) in advanced biliary tract cancer (BTC)*" - G Kim, C Kim, B Kang, S Shin, T Lee, S Song, S Kim, **M Mostafavi**, H Song, S Pereira, H Chon- **ESMO** Congres Abstracts **2023**

- [A4] "*Performance validation of an artificial intelligence-powered PD-L1 combined positive score analyzer in six cancer types*" - T Lee, SI Cho, S Choi, S Kim, W Jung, D Lee, S Lee, **M Mostafavi**, S Park, J Lee, J Shin, S Kim, K Paeng, CY Ock- **ASCO** Annual Meeting Abstracts **2023**

Patents *on Computer Vision / Machine Learning*

- **[P1]** A method and apparatus for generating super resolve intensity image 고해상도 강도 이미지 생성 방법 및 장치 **2020** J Choi, **SM Mostafavi I**, and KJ Yoon. Korean Patent (102366187).

Honors and Awards

- 🏆 Presidential **Excellence Award** - Best Ph.D. **Dissertation** - GIST (2021)
- 🏆 **Rank #1** CVPRW Event-based vision competition for depth estimation from event cameras (2021)
- **Outstanding RA Award** - GIST (2020)
- **Doctoral Consortiums:** IEEE **CVPR** (2020 - USA, Virtual) and **KCCV** (2020 - Korea)
- **Best paper awards**: **KSC** (2019 - Korea), **IPIU Bronze** (2019 - Korea)
- **Scholarships**: Korean Gov. (2015-2019), Global Uni. Project (2015), Iranian Gov. Scholarship (2009-2011)

Languages

- English: **Bilingual fluency**, Farsi: Native, Korean: Intermediate.

Programming Skills and Tools

- **Programming Languages:** Python, MATLAB, C++.
- **Libs. :** PyTorch, OpenCV, TensorFlow, Keras.
- **Tools:** Google GCP, Docker, ROS, Git, Meshlab, LaTeX, Confluence, Jira, Notion.

Services

- [In progress] Challenge organizer - Advances in Neuromorphic Vision - ICME 2024
- [In progress] Volume Editor - proceedings of MICCAI 2023 satellite events - Springer LNCS 2024
- Challenge organizer - *OCELOT 2023: Cell Detection from Cell-Tissue Interaction* - MICCAI 2023
- Reviewer of IEEE: CVPR, ECCV, ICCV, TIM, TCI / IET: IP / Allied Academics / Iranian J. of Medical Physics.
- First Manager of IEEE Young Prof. Affinity Group in Gwangju Korea (2016)

Management Skills

- Performance management, One-on-one meetings, OKRs (Objective, Key Results) management
- Lunit research interview committee (Sep 2021 - Feb 2024) - 80+ screening and 20+ live technical interviews

Teaching

- Teaching Assistant - GIST- Korea (Spring 2020) Visual Recognition and Reasoning
- Teaching Assistant - GIST- Korea (Spring 2017) Digital Signal Processing
- Lecturer - Islamic Azad University - Mobarakeh - Iran (Fall 2011 ~ Spring 2013) Electronic circuits, and 6 labs.