Md Mahfuzur Rahman Siddiquee

Tempe, Arizona, USA mrahmans.me mrahmans@asu.edu

Education

Arizona State University — Tempe, AZ, USA
Ph.D. in Computer Science, GPA: 4.00/4.00 — 2017–Current
Research Area: Medical Imaging, Computer Vision, Deep Learning

North South University — Dhaka, BGD
B.S. in Computer Science and Engineering, GPA: 3.70/4.00 — 2011–2015

Experience

Graduate Research/Teaching Assistant — Tempe, AZ, USA
Arizona State University — August 2017–Current

Applied Research Intern — Santa Clara, CA, USA
NVIDIA Inc. — Summer 2021, Summer 2022

Software Developer — Rome, ITA
Harpa Italia s.r.l — February 2016–July 2017

Selected Publications

[1] A. Myronenko, **M. M. Rahman Siddiquee**, D. Yang, Y. He, and D. Xu, "Automated head and neck tumor segmentation from 3d pet/ct hecktor 2022 challenge report", in *Head and Neck Tumor Segmentation and Outcome Prediction: Third Challenge, HECKTOR 2022, Held in Conjunction with MICCAI 2022, Singapore, September 22, 2022, Proceedings*, Springer, 2023, pp. 31–37.

[2] K. Payette, H. Li, P. de Dumast, R. Licandro, H. Ji, **M. M. Rahman Siddiquee**, D. Xu, A. Myronenko, H. Liu, Y. Pei, *et al.*, "Fetal brain tissue annotation and segmentation challenge results", *Medical Image Analysis*, p. 102 833, 2023.

[3] **M. M. Rahman Siddiquee**, J. Shah, C. Chong, S. Nikolova, G. Dumkrieger, B. Li, T. Wu, and T. J. Schwedt, "Headache classification and automatic biomarker extraction from structural mris using deep learning", *Brain Communications*, vol. 5, no. 1, fcac311, 2023.

[4] **M. M. Rahman Siddiquee**, J. Shah, T. Wu, C. Chong, T. J. Schwedt, G. Dumkrieger, S. Nikolova, and B. Li, "Brainomaly: Unsupervised neurologic disease detection utilizing unannotated t1-weighted brain mr images", *arXiv preprint*, 2023.

[5] **M. M. Rahman Siddiquee**, D. Yang, Y. He, D. Xu, and A. Myronenko, "Automated 3d segmentation of renal structures for renal cancer treatment", in *Lesion Segmentation in Surgical and Diagnostic Applications: MICCAI 2022 Challenges, CuRIOUS 2022, KiPA 2022 and MELA 2022, Held in Conjunction with MICCAI 2022, Singapore, September 18–22, 2022, Proceedings*, Springer, 2023, pp. 36–42.

[6] C. Peng, A. Myronenko, A. Hatamizadeh, V. Nath, **M. M. Rahman Siddiquee**, Y. He, D. Xu, R. Chellappa, and D. Yang, "Hypersegnas: Bridging one-shot neural architecture search with 3d medical image segmentation using hypernet", in *Proceedings of the IEEE/CVF Conference on Computer Vision and Pattern Recognition*, 2022, pp. 20 741–20 751.

[7] **M. M. Rahman Siddiquee** and A. Myronenko, "Redundancy reduction in semantic segmentation of 3d brain tumor mris", in *Brainlesion: Glioma, Multiple Sclerosis, Stroke and Traumatic Brain Injuries: 7th International Workshop, BrainLes 2021, Held in Conjunction with MICCAI 2021, Virtual Event, September 27, 2021, Revised Selected Papers, Part II*, Springer International Publishing Cham, 2022, pp. 163–172.

[8] **M. M. Rahman Siddiquee**, J. Shah, T. Wu, C. Chong, T. Schwedt, and B. Li, "Healthygan: Learning from unannotated medical images to detect anomalies associated with human disease", in *Simulation and Synthesis in Medical Imaging: 7th International Workshop, SASHIMI 2022, Held in Conjunction with MICCAI 2022, Singapore, September 18, 2022, Proceedings*, Springer International Publishing Cham, 2022, pp. 43–54.

[9] **M. M. Rahman Siddiquee**, D. Yang, Y. He, D. Xu, and A. Myronenko, "Automated ischemic stroke lesion segmentation from 3d mri", *arXiv preprint*, 2022.

[10] **M. M. Rahman Siddiquee**, D. Yang, Y. He, D. Xu, and A. Myronenko, "Automated segmentation of intracranial hemorrhages from 3d ct", *arXiv preprint*, 2022.

[11] **M. M. Rahman Siddiquee** and A. Myronenko, "Robust 3d mri segmentation of multiple sclerosis lesions", *MSSEG-2 challenge proceedings: Multiple sclerosis new lesions segmentation challenge using a data management and processing infrastructure*, p. 81, 2021.

[12] **M. M. Rahman Siddiquee**, Z. Zhou, N. Tajbakhsh, R. Feng, M. B. Gotway, Y. Bengio, and J. Liang, "Learning fixed points in generative adversarial networks: From image-to-image translation to disease detection and localization", in *Proceedings of the IEEE International Conference on Computer Vision*, 2019, pp. 191–200.

[13] Z. Zhou, **M. M. Rahman Siddiquee**, N. Tajbakhsh, and J. Liang, "Unet++: Redesigning skip connections to exploit multiscale features in image segmentation", *IEEE transactions on medical imaging*, vol. 39, no. 6, pp. 1856–1867, 2019.

[14] Z. Zhou, V. Sodha, **M. M. Rahman Siddiquee**, R. Feng, N. Tajbakhsh, M. B. Gotway, and J. Liang, "Models genesis: Generic autodidactic models for 3d medical image analysis", in *International Conference on Medical Image Computing and Computer-Assisted Intervention*, Springer, 2019, 384–393. [**Young Scientist Award, Best Paper Award**].

[15] Z. Zhou, **M. M. Rahman Siddiquee**, N. Tajbakhsh, and J. Liang, "Unet++: A nested u-net architecture for medical image segmentation", in *Deep Learning in Medical Image Analysis and Multimodal Learning for Clinical Decision Support*, Springer, 2018, pp. 3–11.

Patents

[1] J. Liang, Z. Zhou, N. Tajbakhsh, and **M. M. R. Siddiquee**, "Systems, methods, and apparatuses for implementing fixed-point image-to-image translation using improved generative adversarial networks (gans)", US Patent App. 17/477,088, Mar. 2022.

[2] Z. Zhou, **M. M. R. Siddiquee**, N. Tajbakhsh, and J. Liang, "Methods, systems, and media for segmenting images", US Patent 11,328,430, May 2022.

[3] Z. Zhou, V. Sodha, **M. M. R. Siddiquee**, R. Feng, N. Tajbakhsh, and J. Liang, "Systems, methods, and apparatuses for the generation of source models for transfer learning to application specific models used in the processing of medical imaging", US Patent App. 17/625,313, Aug. 2022.

[4] J. Liang, Z. Zhou, **M. M. R. Siddiquee**, and N. Tajbakhsh, "Systems, methods, and apparatuses for implementing a multi-resolution neural network for use with imaging intensive applications including medical imaging", US Patent 11,164,067, Nov. 2021.

[5] **M. M. R. Siddiquee**, Z. Zhou, R. Feng, N. Tajbakhsh, and J. Liang, "Methods, systems, and media for discriminating and generating translated images", US Patent 11,164,021, Nov. 2021.

Teaching

- **Instructor** at Arizona State University — Fall 2020, Fall 2019
  Introduction to Engineering (FSE 100)
- **Teaching Assistant** at Arizona State University — Fall 2020
  Introduction to Programming (CSE 110)
- **Instructor** at Arizona State University — Summer 2020
  Introduction to Programming (CSE 110)
- **Instructor** at Arizona State University — Spring 2020
  CS Capstone Project I (CSE 485)

Skills

- **Programming:** Python, C/C++, Java, Javascript, PHP, Bash
- **Deep Learning:** Pytorch, Keras, Tensorflow, Caffe
- **Web Development:** HTML, CSS, Node.js
- **Database:** MySQL, MongoDB

Languages

- **Bangla:** native proficiency
- **English:** full professional proficiency
- **Italian:** limited working proficiency

Selected Awards

- 1^{st} Place in Head and Neck Tumor Segmentation Challenge (HECKTOR), MICCAI 2022 — September 2022
- 2^{nd} Place in Intracranial Hemorrhage Segmentation Challenge (INSTANCE), MICCAI 2022 — September 2022
- 2^{nd} Place in Ischemic Stroke Lesion Segmentation Challenge (ISLES), MICCAI 2022 — September 2022
- 1^{st} Place in Fetal Brain Tissue Annotation and Segmentation Challenge (FeTA), MICCAI 2021 — October 2021
- 4^{th} Place in RSNA-ASNR-MICCAI Brain Tumor Segmentation (BraTS) Challenge 2021 — November 2021
- Engineering Graduate Fellowship by Ira A. Fulton School of Engineering — May 2020
- Conference Travel Grant by Graduate and Professional Student Association, Arizona State University — April 2020
- Conference Travel Grant by International Conference on Computer Vision — October 2019
- CIDSE Conference Travel Award by Arizona State University — October 2019
- Conference Travel Grant by Graduate and Professional Student Association, Arizona State University — August 2019
- Conference Travel Grant by Graduate and Professional Student Association, Arizona State University — March 2019
- Outstanding Contribution in Reviewing by Journal of Biomedical Informatics — June 2018
- 2^{nd} Prize in the Annual Student Poster Competition by BMI/BMD Symposium, Arizona State University — April 2018

Services

- **Journal Reviewer:** IEEE Transaction on Medical Imaging (TMI), Journal of Biomedical Informatics (JBI)
- **Conference Reviewer:** CVPR 2023, AAAI 2023, WACV 2020
- Travel and Research Grant Reviewer at Graduate and Professional Student Association, Arizona State University Fall 2018–Summer 2019